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# CATALOG

## WRITTEN EXAM QUESTIONS

LICENCE
Private pilot-airplane - PPL(A)a

LJUBLJANA
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## AIRPLANE GENERAL KNOWLEDGE (K)

**K-0001.** The cylinder inlet of a reciprocating engine is connected to the

(1) oil cooler.
(2) fuel reservoir.
(3) carburetor diffusor.
(4) exhaust collector.

**K-0002.** What part(s) of a reciprocating aircraft engine seal(s) the combustion chamber?

(1) The cylinder gasket.
(2) The cylinder rings and valves.
(3) The spark plugs.
(4) The camshaft.

**K-0003.** The piston rod in a reciprocating engine forms a link between

(1) the cylinder piston and the camshaft.
(2) the valve rod and the rocker arm.
(3) the rocker arm and the valve body.
(4) the cylinder piston and the crankshaft.

**K-0004.** What part in a reciprocating four-stroke engine operates the piston valves?

(1) The piston rod.
(2) The piston bolt.
(3) The diffusor valve.
(4) The camshaft.

**K-0005.** During which two of the four strokes of a reciprocating four-stroke engine are both piston valves closed?

(1) Induction stroke and compression stroke.
(2) Compression stroke and power stroke.
(3) Exhaust stroke and induction stroke.
(4) Power stroke and exhaust stroke.

**K-0006.** The purpose of fins around the cylinder of a reciprocating air-cooled aircraft engine is a

(1) cylinder augmentation.
(2) lower engine aerodynamic drag.
(3) lower engine mass.
(4) better cylinder cooling.

K-0007. How many valves are in the piston of a conventional reciprocating aviation engine?

(1) One.
(2) Two.
(3) Four.
(4) Eight.

K-0008. Compared to the crankshaft speed the camshaft of a reciprocating four-stroke engine rotates

(1) at half speed.
(2) at the same speed.
(3) two times faster.
(4) four times faster.

K-0009. The power of an aviation engine without a supercharger decreases with altitude because of

(1) lower outside temperatures it does not operate at optimum temperature.
(2) higher air density it receives too poor fuel/air mixture.
(3) lower air density and therefore insufficient cylinder loading.
(4) lower air density it receives too rich fuel/air mixture.

K-0010. A reciprocating aviation engine develops the highest power

(1) at high altitudes.
(2) during takeoff with full RPM.
(3) in level flight at low altitude.
(4) during takeoff.

K-0011. Oil in a reciprocating engine serves

(1) to increase mixture combustion temperature in the cylinders.
(2) as additive for proper fuel/air which burns in the cylinders.
(3) for lubricating and cooling of the engine.
(4) for quiet engine operating only.

K-0012. How shall a pilot determine the type & viscosity of oil required in an aircraft?

(1) By referring to the plate mounted near the dipstick.
(2) By referring to the Aircraft Operator´s Manual.
(3) By referring to the labels on the containers (the labels will state the viscosity of oil).
(4) All piston-engine aircraft use the same SAE40 (80W) oil.

K-0013. What would be the most likely cause of fluctuating oil pressure in an aircraft engine?

(1) Worn or loose bearing.
(2) Loose prop seal.
(3) Faulty oil pressure indicator.
(4) Low oil level.

**K-0014.** When the engine is stopped, the main source of electrical power is the

(1) battery.
(2) magneto.
(3) generator or alternator.
(4) circuit breaker.

**K-0015.** If the alternator fails in flight, the aircraft engine

(1) keeps running normally.
(2) keeps running however unevenly and roughly.
(3) keeps running provided the magnetos receive electrical power from the battery.
(4) stops running.

**K-0016.** Is it possible to lover wing flaps in flight if the alternator fails?

(1) No, because they are always electrically driven.
(2) Yes, by a means of an accumulator only.
(3) Yes, by a means of free fall.
(4) Depends on type of the aircraft.

**K-0017.** For exciting of the alternator an initial electrical current is needed, provided by the

(1) magneto.
(2) ignition coil.
(3) current distributor.
(4) battery.

**K-0018.** A distribution point for electrical power to various services is called the

(1) circuit breaker.
(2) fuse.
(3) distributor.
(4) bus bar.

**K-0019.** A left-zero ammeter measures the

(1) flow of current into the battery.
(2) flow of current out-of the battery.
(3) voltage of the main bus.
(4) output of the alternator.

**K-0020.** A center-zero ammeter measures the

(1) output of the alternator.
(2) flow of current into and out-of the battery.
(3) voltage of the main bus.
(4) exciting current of the alternator.

K-0021. The heavy duty starter circuit is activated by the solenoid-activated switch remotely controlled from the cockpit through a low current circuit

(1) to avoid the energy loses that would occur in the additional heavy duty cable to the cockpit.
(2) to avoid the extra weight of the heavy duty cable to the cockpit.
(3) to avoid an unnecessary fire risk caused by the heavy current in the cockpit.
(4) all of the above.

K-0022. Compared to the current flow through the starter circuit that connects the battery to the starter motor, the current flow through the ignition switch in the START position is

(1) low.
(2) high.
(3) the same.

K-0023. What happens if an aircraft alternator or generator fails in-flight?

(1) Engine operating is not affected.
(2) Operating of the radio equipment is affected.
(3) Pneumatic instruments will stop operating.
(4) Landing light will be unusable.

K-0024. Can the alternator of an aircraft engine operate without the battery?

(1) No, in no case.
(2) Yes, provided the magnetos operate properly.
(3) Yes, however at high RPM only.
(4) Yes, provided the pilot has switched off all electrical services on board.

K-0025. To which source of electrical power is the starter of an aircraft engine connected to?

(1) Directly to the battery.
(2) To the external source of electrical power only.
(3) To the alternator or generator.
(4) Depends on the type of aircraft.

K-0026. The voltage regulator of an engine driven aircraft

(1) could be adjusted in flight by the pilot in case the voltage is out of proper limits.
(2) functions automatically.
(3) could be switched on by the special switch in the cockpit.
(4) switches on automatically in case of alternator failure.

K-0027. What ignition system is usually installed in a recopriating engine of a sport aircraft?

(1) Dual magneto ignition system.
(2) Single magneto ignition system.
(3) Dual battery or magneto ignition system.
(4) Middle-voltage ignition system.

K-0028. What does a typical lead-acid battery contain?

(1) Weak hydrochloric acid.
(2) Destilated water only.
(3) 100% hydrochloric acid.
(4) Weak sulphuric acid.

K-0029. The battery master switch should be turned to OFF after the engine is stopped to avoid the battery discharging through the

(1) magnetos.
(2) alternator or generator.
(3) electrical services connected to it.
(4) ignition switch.

K-0030. Because of the very low revs as you start the engine the sparks need to be delayed. This is done automatically in some magnetos by

(1) an ignition coil.
(2) a constant speed propeller.
(3) breakers points.
(4) an impulse coupling.

K-0031. In case of single magneto failure, how many spark plugs stay fire in a conventional six-cylinder aviation engine?

(1) Zero.
(2) Three.
(3) Six.
(4) Twelve.

K-0032. One purpose of the dual ignition system on an aircraft engine is to provide for

(1) balanced cylinder head pressure.
(2) improved engine performance.
(3) uniform heat distribution.

K-0033. What would be the result of a single magneto failure on an aircraft in cruise flight?

(1) The engine would be difficult to control.
(2) A slight drop in RPM, plus a slight increase in fuel consumption.
(3) The engine would backfire excessively.
(4) Black smoke would be observed from the exhaust.

K-0034. Can an engine of a parked modern reciprocating aircraft fire if somebody turns the propeller by hand?

(1) Normally not if the engine is cold with ignition switched off.
(2) No, under no circumstances.
(3) Yes, always.
(4) Yes, provided the master switch is on.

K-0035. If the magneto ground wire is broken

(1) the engine cannot be started.
(2) the engine can bo started by handpropping only.
(3) the engine cannot be stopped.
(4) a clearly seen warning must be exposed on the propeller of the parked aircraft.

K-0036. What would be the effect of a faulty or broken magneto ground wire during a flight?

(1) The engine would stop instantaneously.
(2) The engine speed would drop approximately 100 RPM.
(3) The alternator output would decrease.
(4) No effect on engine operation.

K-0037. The operating principle of float-type carburetors is based on the

(1) automatic metering of air at the venturi as the aircraft gains altitude.
(2) difference in air pressure at the venturi throat and the air inlet.
(3) increase in air velocity in the throat of a venturi causing an increase in air pressure.

K-0038. A carburetor is used to supply

(1) air to the engine cylinders.
(2) fuel to the engine cylinders.
(3) a fuel/air mixture to the engine cylinders.

K-0039. An engine that does not have a carburetor but rather metered fuel that is fed under pressure into the induction manifold, is said to have

(1) fuel injection.
(2) supercharging.
(3) metering carburetor.

K-0040. What is a reciprocating engine optimum fuel/air mixture ratio?

(1) 15:1.
(2) 1:20.
(3) 20:1.
(4) 1:15.

K-0041. The amount of fuel that flows through the carburetor is directly controlled by the

(1) fuel pump.
(2) accelerator pump.
(3) throttle.
(4) airflow through the carburetor venturi.

**K-0042.** The accelerator pump on a carburetor is used to

(1) control the fuel/air mixture during the cruise.
(2) shut the engine down.
(3) prevent an over-lean mixture, or even a "weak-cut", if the throttle is opened quickly.

**K-0043.** The mixture control is used to

(1) alter the fuel flow to the main jet of the carburetor.
(2) increase the volume of air through the carburetor.
(3) increase the fuel flow through the accelerator pump.
(4) alter the level of fuel in the float chamber.

**K-0044.** The basic purpose of adjusting the fuel/air mixture at altitude is to

(1) decrease the amount of fuel in the mixture in order to compensate for increased air density.
(2) increase the amount of fuel in the mixture to compensate for the decrease in pressure and density of the air.
(3) decrease the fuel flow in order to compensate for decreased air density.

**K-0045.** What change occurs in the fuel/air mixture when carburetor heat is applied?

(1) A decrease in RPM results from the lean mixture.
(2) The fuel/air mixture becomes richer.
(3) The fuel/air mixture becomes leaner.

**K-0046.** During the run-up at a high-elevation airport, a pilot notes a slight engine roughness that is not affected by the magneto check but grows worse during the carburetor heat check. Under these circumstances, what would be the most logical initial action?

(1) Taxi back to the flight line for a maintenance check.
(2) Reduce manifold pressure to control detonation.
(3) Check the results obtained with a leaner setting of the mixture.

**K-0047.** While cruising at 9,500 feet MSL, the fuel/air mixture is properly adjusted. What will occur if a descent to 4,500 feet MSL is made without readjusting the mixture?

(1) There will be more fuel in the cylinders than is needed for normal combustion, and the excess fuel will absorb heat and cool the engine.
(2) The fuel/air mixture may become excessively lean.
(3) The excessively rich mixture will create higher cylinder head temperatures and may cause detonation.

**K-0048.** With regard to carburetor ice, float-type carburetor systems in comparison to fuel injection systems are generally considered to be

(1) more susceptible to icing.
(2) equally susceptible to icing.
(3) susceptible to icing only when visible moisture is present.

**K-0049.** Can carburetor icing occur when the ambient temperature is +20°C?

(1) No, it´s to warm.
(2) Yes, at high altitudes.
(3) Yes, if the air is humid.
(4) Yes, always.

**K-0050.** What is the effect does carburetor ice have?

(1) It prevents proper operation of the carburetor jets.
(2) It restricts movement of the carburetor float thereby reducing the power output.
(3) It restricts the movement of the carburetor linkage.
(4) It restricts the flow of air through the carburetor (thereby reducing power).

**K-0051.** Which condition is most favorable to the development of carburetor icing?

(1) Any temperature below freezing an a relative humidity of less than 50 percent.
(2) Temperature between 0 and 10°C and low humidity.
(3) Temperature between -6 and 20°C and high humidity.

**K-0052.** If an aircraft is equipped with a fixed-pitch propeller and a float-type carburetor, the first indication of carburetor ice would most likely be

(1) loss of RPM.
(2) engine roughness.
(3) a drop in oil temperature and cylinder head temperature.

**K-0053.** Applying carburetor heat will

(1) not effect the fuel/air mixture.
(2) result in more air going through the carburetor.
(3) enrich the fuel/air mixture.

**K-0054.** In a fixed-pitch propeller aircraft, what is the effect on manifold pressure and RPM when carburetor heat is applied?

(1) Manifold pressure will increase and RPM will decrease.
(2) Manifold pressure and RPM will both decrease.
(3) Manifold pressure will remain constant and RPM will decrease.

**K-0055.** Carburetor ice has formed in the venturi of your carburetor and your aircraft starts losing power. Will the use of carburetor heat result in immediate increase in RPM?

(1) Yes, since the carburetor ice will melt immediately.
(2) No, since carburetor heat simply melts the ice and does not affect RPM.
(3) No, in a fixed-pitch propeller aircraft there will first be some rough running and a further loss of RPM as the melted ice is ingested by the engine. Then RPM will increase.

**K-0056.** What is the purpose of an auxiliary fuel boost pump installed in some light aircraft?

(1) Faster emptying of fuel tanks.
(2) Providing fuel to the carburetor during start-up and supplying fuel if the engine driven fuel pump fails.
(3) Pre-injection of fuel into engine cylinders.
(4) Increasing engine efficiency.

**K-0057.** Proper functioning of an auxiliary fuel pump could be checked by

(1) the fuel pressure.
(2) the characteristic noise.
(3) the alternator output.
(4) a fuel dropping out of the drain hole.

**K-0058.** The fuel priming pump operated by the pilot delivers fuel

(1) through the carburetor to the induction manifold or inlet valve ports.
(2) through the carburetor and directly into each of the cylinders.
(3) to the induction manifold or inlet valve ports, bypassing the carburetor.

**K-0059.** Why do high compression engines require fuels of a higher grade?

(1) To develop more power.
(2) To avoid detonation and resulting destruction of the engine.
(3) To prevent carburetor icing at high speeds.
(4) To avoid pre-ignition and resulting destruction of the engine.

**K-0060.** Detonation occurs in a reciprocating aircraft engine when

(1) the spark plugs are fouled or shorted out or the wiring is defective.
(2) hot spots in the combustion chamber ignite the fuel/air mixture in advance of normal ignition.
(3) the unburned charge in the cylinders explodes instead of burning normally.

**K-0061.** A precaution for the operation of an engine equipped with a constant-speed propeller is to

(1) avoid high RPM settings with high manifold pressure.
(2) avoid high manifold pressure settings with low RPM.
(3) always use a rich mixture with high RPM settings.

**K-0062.** On a reciprocating aviation engine, what is controlled by the exhaust temperature gauge (EGT)?

(1) Carburetor icing.
(2) Quality of the fuel/air mixture.
(3) Oil pressure.
(4) Oil consumption.

K-0063. The pilot sets the fuel/air mixture to the best power by adjusting the exhaust temperature gauge EGT pointer to

(1) a peak value minus 100°F on the "reach" side.
(2) a peak value.
(3) a peak value minus 100°F on the "lean" side.
(4) a peak value minus 25°-50°F on the "reach" side.

K-0064. Typically, to achieve maximum economy, a pilot would lean the engine to maximum EGT

(1) and then lean the mixture by 25°F.
(2) and then enrich the mixture by 100°F.
(3) and then enrich the mixture by 25°F.
(4) and then lean the mixture by 100°F.

K-0065. Considering the piston engine performance, which temperature should be observed?

(1) Cabin temperature.
(2) Outside temperature or the temperature in the carburetor.
(3) Standard temperature.
(4) Ground surface temperature.

K-0066. An abnormally high oil temperature indication in case of a four-stroke engine may be caused by

(1) the oil level being too low.
(2) operating with a too high viscosity oil.
(3) excessively rich mixture.
(4) the oil level being too high.

K-0067. For internal cooling, a reciprocating aircraft engine especially depends on

(1) the circulation of lubricating oil.
(2) the air flowing over the exhaust manifold.
(3) a properly functioning thermostat.

K-0068. Excessively high engine temperatures, either in the air or on the ground, will

(1) increase fuel consumption and may increase power due to the increased heat.
(2) result in damage to heat-conducting hoses and warping of cylinder cooling fans.
(3) cause loss of power, excessive oil consumption, and possible permanent internal engine damage.

K-0069. The cowl flaps of an aviation reciprocating engine are adjusted regarding which temperature?

(1) The outside air temperature.
(2) The temperature in the carburetor.
(3) The cylinder head temperature.
(4) The temperature in the cockpit.

K-0070. If the engine oil temperature and cylinder head temperature gauges have exceeded their normal operating range, the pilot may have been operating with

(1) too much power and with the mixture set excessively lean.
(2) the mixture set excessively rich.
(3) higher-than-normal oil pressure.

K-0071. What effect does high density altitude, as compared to low density altitude, have on propeller efficiency and why?

(1) Efficiency is increased due to less friction on the propeller blades.
(2) Efficiency is reduced because the propeller exerts less force at high density altitudes than at low density altitudes.
(3) Efficiency is reduced due to the increased force of the propeller in the thinner air.

K-0072. What is the advantage of a constant-speed propeller?

(1) Permits the pilot to select and maintain a desired cruising speed.
(2) Permits the pilot to select the blade angle for the most efficient performance.
(3) Provides a smoother operation with stable RPM and eliminates vibrations.

K-0073. As the throttle is advanced, what happens to the constant-speed propeller of an aircraft?

(1) Angle of attack will increase.
(2) Angle of attack will not change.
(3) RPM will increase.
(4) Angle of attack will decrease.

K-0074. If a pilot lower the nose of an aircraft equipped with a constant-speed propeller, blade´s angle of attack

(1) decreases.
(2) remains unchanged, because it can be altered by the propeller control only.
(3) remains unchanged, because the throttle has not changed.
(4) increases.

K-0075. Which of the following characteristics belong to an aircraft with a "fine pitch" propeller?

(a) Low cruise speed.
(b) Long take-off distance.
(c) Short take-off distance.
(d) High outside noise level.
(e) High cruise speed.
(f) High rate of climb.

(1) b,d,e,f.
(2) a,d,f.
(3) a,c,d,f.
(4) a,b,f.

K-0076. What effect will the propeller slipstream have on an aeroplane during the take-off run?

(1) The aircraft will tend to rotate.
(2) The aircraft will tend to swing off the runway quite sharply.
(3) The aircraft will skid off the runway in a sideway manner.
(4) It will tend to push the nose down.

K-0077. In what flight condition is a torque effect the greatest in a single-engine airplane?

(1) High airspeed, high power, high angle of attack.
(2) Low airspeed, high power, high angle of attack.
(3) Low airspeed, low power, low angle of attack.

K-0078. Which adverse effect, caused by a gyroscopic effect, will a pilot experience during the takeoff roll while lifting a tail off the ground?

(1) Banking tendency.
(2) Pitching.
(3) Yawing.

K-0079. The left turning tendency of an airplane caused by P-factor is the result of the

(1) gyroscopic forces applied to the rotating propeller blades acting 90° in advance of the point the force was applied.
(2) propeller blade descending on the right, producing more thrust than the ascending blade on the left.
(3) clockwise rotation of the engine and the propeller turning the airplane counter-clockwise.

K-0080. When does a P-factor cause the airplane to yaw to the left?

(1) When at low angles of attack.
(2) When at high angles of attack.
(3) When at high airspeeds.

K-0081. What is the net result of the right-hand rotating propeller's gyroscopic effect, the slipstream effect and the P-factor effect during the takeoff run?

(1) Strong swinging tendency to the left.
(2) The effects tend to cancel each other.
(3) Strong swinging tendency to the right.
(4) Strong tendency to pitch-up.

K-0082. The engine mount of a light airplane or an ultralight airplane is fitted to the

(1) fuselage stringers.
(2) fuselage skin.
(3) reinforced cabin floor.
(4) firewall.

K-0083. The oleo-pneumatic struts on the landing gear unit are provided for

(1) easier overcoming of large control forces.
(2) control surfaces vibrations dumping.
(3) shock dumping and aircraft bouncing dumping at landing, which otherwise happens in case the aircraft has installed simple shock springs.

K-0084. The dumping agent used to dampen the rebound action in the oleo-pneumatic unit following a shock is the

(1) compressed air.
(2) hydraulic fluid.
(3) engine oil.
(4) steel spring.

K-0085. Nosewheel steering in a light aircraft is usually operated by

(1) control rods or cables operated by the rudder pedals.
(2) a steering wheel.
(3) differential braking.

K-0086. A castoring nosewheel can be made to turn by

(1) a steering wheel.
(2) differential braking.
(3) control rods or cables connected to the rudder pedals.

K-0087. What is the function of a shimmy dumper on an aircraft undercarriage?

(1) To dumpen bouncing.
(2) To decrease main leg piston travel.
(3) To decrease shocks on direction pedals.
(4) To prevent nose wheel vibrations.

K-0088. Most light aircraft braking systems are operated

(1) by cables.
(2) pneumatically.
(3) hydraulically.
(4) electrically.

K-0089. The brake pads may suffer unnecessary wear if the

(1) tyre pressure is too high.
(2) tyre pressure is too low.
(3) parking brake is left on overnight.
(4) brake disc is corroded or pitted.

K-0090. If a pilot of an aircraft equipped with disc brakes puts the parking brake on rather than letting it cool down, what would the most likely happen?

(1) Brakes could suffer damages because they will cool down too slowly.
(2) Brakes could not hold any longer when they cool down.
(3) Brakes could get stuck.
(4) All answers are correct.

K-0091. The stall warning device in a light airplane functions on a principle of sensing the

(1) velocity.
(2) side slipping.
(3) angle of attack.
(4) longitudinal acceleration.

K-0092. The stall warning device in a light airplane provides us always with the correct signal regardless of airplane mass and bank angle, which have, at the other hand, influence on stall speed, because it

(1) measures normal accelerations, which depends on mass and bank angle of the airplane.
(2) senses approaches to the critical angle of attack, which does not depend on mass and bank angle of the airplane.
(3) is adjusted to the stall speed at maximum takeoff mass and maximum allowed bank angle.
(4) is adjusted to the stall speed at basic empty mass in level flight.

K-0093. The castle nut is protected against turning by the

(1) cotter pin.
(2) counter-nut.
(3) spring washer.
(4) plastic bushing.

K-0094. How many times could the self-locked nut with a plastic bushing be used?

(1) Only once.
(2) Two times.
(3) Three times.
(4) As many times as needed.

K-0095. A turnbuckle on the control cable

(1) has strong friction in the thread itself and doesn't need to be secured against opening.
(2) must be properly secured against opening.
(3) is secured against opening by a special crown nut.

K-0096. The load on the strut beneath the aircraft wing during normal flight is

(1) torsion.
(2) stretch.
(3) pressure.
(4) bend.

K-0097. The load on the strut beneath the aircraft wing the during inverted flight is

(1) torsion.
(2) stretch.
(3) pressure.
(4) bend.

K-0098. Besides bend loads, the upper spar and the lower spar of the wing during the normal flight are exposed to:

(1) the lower spar - stretch; the upper spar - pressure.
(2) both spars - pressure.
(3) both spars - stretch.
(4) the lower spar - pressure; the upper spar - stretch.

K-0099. Besides bend loads the upper spar of the wing during the inverted flight is exposed to the

(1) stretch.
(2) torsion.
(3) pressure.

K-0100. The artificial glass used for aircraft canopies or windshields may be cleaned

(1) by the same preparations for cleaning normally used for window glass cleaning.
(2) similarly as we clean the motor car windows because of the same hardness.
(3) together with other aircraft surfaces and with the same preparations for cleaning.
(4) by mild and non-abrasive preparations for cleaning.

K-0101. After cleaning, the windows of an aircraft could be protected by the

(1) thin film of oil.
(2) graphit fat.
(3) silicon fat.
(4) thin deposit of wax and polishing with a soft cloth.

K-0102. An oil on the windscreen of an aircraft may be removed by

(1) the alcohol.
(2) water with an added mild liquid detergent.
(3) the acetone.
(4) the gasoline or kerosine.

K-0103. Because of irregular cleaning of external surfaces an aircraft can suffer of increased

(1) form drag.
(2) friction drag.
(3) induced drag.
(4) interference drag.

**K-0104.** Irregular cleaning of the propeller can cause the

(1) aircraft nose vibrations.
(2) visual illusions when flying towards the sun.
(3) corrosion beneath the layer of dirt.
(4) lower RPM and therefore lower power at given throttle lever setting.

**K-0105.** A vacuum pump may be used to operate

(1) gyroscopic instruments.
(2) engine instruments.
(3) pitot-static instruments.

**K-0106.** The vacuum pump, if fitted to most sport airplanes, is most likely to be

(1) electrically driven.
(2) engine driven.
(3) hydraulically driven.

**K-0107.** A pressure which is presented to the pilot in a cockpit by the manifold pressure gauge is collected from the

(1) generator.
(2) landing gear.
(3) intake manifold.
(4) exhaust manifold.

**K-0108.** When an engine of an aircraft is not operating, the manifold pressure gauge reads

(1) 29,92 inHg.
(2) QNH.
(3) atmospheric pressure.
(4) zero.

**K-0109.** Which pressure is collected by the mouth of a pitot tube?

(1) Total pressure (p+q).
(2) Static pressure (p).
(3) Dynamic pressure (q).
(4) The suction (-q) for operation of a turn-and-slip indicator.

**K-0110.** Which instrument(s) is (are) connected to the total pressure?

(1) Airspeed indicator, classic rate-of-climb indicator, and altimeter.
(2) Classic vertical speed indicator and altimeter.
(3) Classic vertical speed indicator only.
(4) Airspeed indicator only.

**K-0111.** Besides the altimeter, which instruments are connected to the static pressure line?

(1) Airspeed indicator, vertical speed indicator, and turn-and-skid indicator.
(2) Airspeed indicator only.
(3) Airspeed indicator and external temperature indicator.
(4) Airspeed indicator and vertical speed indicator.

**K-0112.** Which instrument(s) does (do) not need static pressure supply for operation?

(1) Airspeed indicator.
(2) Airspeed indicator and electrical vertical speed indicator.
(3) Van-type vertical speed indicator.
(4) Pneumatically operated turn-and-slip indicator.

**K-0113.** If the static vents become clogged the accuracy of the

(1) airspeed is not affected.
(2) vertical speed is affected only.
(3) altimeter is affected only.
(4) altimeter, vertical speed and airspeed is affected.

**K-0114.** Which instrument(s) become inoperative if the static vents become clogged?

(1) Altimeter, vertical speed, and airspeed.
(2) Vertical speed, airspeed, and turn-and-skid.
(3) Altimeter, artificial horizon, and turn-and-skid.
(4) Vertical speed, artificial horizon, and turn-and-skid.

**K-0115.** Which instrument(s) is (are) <u>not effected</u> if the static vents become clogged?

(1) Airspeed.
(2) Altimeter.
(3) Vertical speed.
(4) Turn-and-slip.

**K-0116.** Which instrument(s) will become inoperative if the pitot tube becomes clogged?

(1) Altimeter only.
(2) Pneumatic vertical speed only.
(3) Airspeed only.
(4) Altimeter and airspeed.

**K-0117.** Which of the instruments of a standard equipped sport airplane will be operational in case of engine failure?

a) Artificial horizon.
b) Altimeter.
c) Vertical speed.
d) Gyroscopic compass..
e) Turn coordinator/turn-and-slip.
f ) Airspeed.

(1) b,f.
(2) a,c,d,f.
(3) b,c,e,f.
(4) b,c,f.

**K-0118.** The operational principle of a vertical speed indicator with the capsule is measurement of the

(1) difference between the pressure in the capsule and pressure in the housing of the instrument.
(2) difference between the total pressure and static pressure.
(3) difference between the dynamic pressure and static pressure.
(4) static pressure in the housing of the instrument.

**K-0119.** How does the vertical speed indicator with the capsule work during descent?

(1) The outside pressure decreases, which causes an indication of descending?
(2) The pressure build up in the capsule delays in comparison with the pressure build up in the instruments´s housing, which causes shrinking of the membrane capsule.
(3) The pressure differential between total pressure and static pressure transfers to the membrane capsule and from there to the instrument´s pointer.
(4) The membrane capsule extends because of the pressure drop in instrument´s housing and constant pressure in the membrane capsule, which causes an indication of descending.

**K-0120.** Which pneumatic hoses are connected to a classic pneumatic non-compensated vertical speed indicator?

(1) Static pressure hose (p), total pressure hose (p+q) and thermos hose.
(2) Total pressure hose (p+q) and thermos hose.
(3) Static pressure hose (p) and total pressure hose (p+q).
(4) Static pressure hose (p) and thermos hose.

**K-0121.** What would be the effect if the thermos bottle connection to the pneumatic vertical speed indicator becomes loose in flight?

(1) The instrument will be erroneous because of temperature influences.
(2) The instrument indication will be stable in all cases, however it will be erroneous.
(3) The vertical speed indicator will show zero all the time.
(4) The instrument´s membrane capsule will deform, therefore the instrument will be unusable for further use.

**K-0122.** What is the basic operational principle difference between the membrane capsule in an airspeed indicator and the membrane capsule in an altimeter? The membrane capsule in an airspeed indicator is

(1) closed with total the pressure line connected to the place for connection of the static pressure line; in the membrane capsule is a vacuum.
(2) closed and connected with static pressure; the membrane capsule in an altimeter is opened and connected with total pressure.
(3) opened and connected with total pressure; the membrane capsule in an altimeter is closed.
(4) under influence of atmospheric pressure; the membrane capsule is under influence of dynamic pressure.

**K-0123.** For airspeed measurement by a classic airspeed indicator on an aircraft the dynamic pressure is needed which depends

(1) on an air pressure only.
(2) on an air density and a second power of an airspeed.
(3) exclusively on an airspeed.
(4) on temperature only.

**K-0124.** How does a mechanical airspeed indicator work?

(1) High pressure ram air moves a lever which moves the airspeed indicator needle.
(2) Differential air pressure from two separate inputs acting on a either side of diaphragm operates a system of levers which moves the airspeed indicator needle.
(3) Combine air pressure inputs operate a turbine which is geared to the airspeed indicator needle.

**K-0125.** What is the maximum structural cruising speed of the given aircraft?

(see Figure 8)

(1) 100 mph.
(2) 165 mph.
(3) 198 mph.
(4) 65 mph.

**K-0126.** What kind of pressure supply is needed for functioning of an aircraft airspeed indicator?

(1) Dynamic pressure and the separate supply of static pressure.
(2) Static pressure only.
(3) Total pressure and separate supply of static pressure.
(4) The suction equal to the dynamic pressure only.

**K-0127.** Each airspeed indicator needs for operation

(1) static pressure, which comes from the static ports on the fuselage.
(2) total pressure, which comes from the mouth of the pitot tube.
(3) Both answers 1 and 2 are correct provided both pressure lines are connected to the instrument on its own connection pad.
(4) Both answers 1 and 2 are correct provided both pressure lines are connected to the the instrument on the same connection pad.

K-0128. What is the full flap operating range for the given airplane?

(see Figure 8)

(1) from 60 mph to 100 mph.
(2) from 65 mph to 165 mph.
(3) from 60 mph to 198 mph.
(4) from165 mph to 198 mph.

K-0129. Which of the following is the indicated speed of an aircraft, corrected for instrumental and position error?

(1) CAS.
(2) IAS.
(3) TAS.
(4) EAS.

K-0130. Calibrated velocity of an aircraft, corrected for altitude and temperature is

(1) IAS.
(2) CAS.
(3) EAS.
(4) TAS.

K-0131. Which mark on an airspeed indicator of a single engine aeroplane denotes the never-exceed speed?

(1) Upper limit of the white arc.
(2) Upper limit of the green arc.
(3) Red radial line.
(4) Lower limit of the green arc.

K-0132. What causes the true airspeed of an airplane to differ from its indicated airspeed?

(1) The forward wind component.
(2) Pitot error caused by flow losses in the pitot tube.
(3) Yaw error caused by the yawing movement in cruise flight.
(4) Variations in temperature and air density.

K-0133. Does the difference between indicated airspeed (IAS) and true airspeed (TAS) remain constant as your altitude increases during a climb?

(1) Yes, on any one aircraft, the difference between IAS and TAS is constant.
(2) Yes, as long as sea level temperature remains constant.
(3) No. The difference between IAS and TAS changes with temperature and altitude.

K-0134. Which color on an airspeed indicator of an airplane identifies the power-off stalling speed with raised wing flaps and landing gear?

(see Figure 8)

(1) Upper limit of the green arc.
(2) Upper limit of the white arc.
(3) Lower limit of the green arc.
(4) Lower limit of the white arc.

**K-0135.** Which is an important airspeed limitation that is not color coded on airspeed indicators on any one aircraft or glider?

(1) Maximum structural cruising speed ($V_{MO}$).
(2) Never-exceed speed ($V_{NE}$).
(3) Maneuvering speed ($V_A$).
(4) Maximum speed with wing flaps extended ($V_{FE}$).

**K-0136.** Which color on an airspeed indicator identifies the power-off stalling speed with wing flaps and landing gear in the landing configuration?

(1) Upper limit of the green arc.
(2) Upper limit of the white arc.
(3) Lower limit of the green arc.
(4) Lower limit of the white arc.

**K-0137.** Which color on an airspeed indicator identifies the normal flap operating range?

(1) The lower limit of the white arc to the upper limit of the green arc.
(2) The green arc.
(3) The white arc.
(4) The yellow arc.

**K-0138.** The maximum speed for flaps extension is

(1) lower than the maximum speed for flying with flaps extended.
(2) equal to the maximum cruising speed.
(3) equal to the maneuvering speed.
(4) equal to the maximum speed for flying with flaps extended.

**K-0139.** What does the green color band on the airspeed indicator of an aircraft indicate?

(1) Dangerous area.
(2) The landing gear and flaps operating speed range.
(3) Normal operating speed range.
(4) Maximum allowed speed.

**K-0140.** What does the red line on an aviation instrument generally represent?

(1) Dangerous area.
(2) Landing gear operating speed range.
(3) Normal operating range.
(4) Maximal or minimal allowed value.

**K-0141.** The red line on an airspeed indicator of a sport aircraft represents the

(1) speed which must not be exceeded any time.
(2) maximum speed for abrupt controls movement.
(3) speed which could be exceeded in calm air only.
(4) speed which could be exceeded with the wing flaps raised and the landing gear retracted.

**K-0142.** What is the maximum flaps-extended speed?

(see Figure 8)

(1) 165 mph.
(2) 100 mph.
(3) 65 mph.
(4) 60 mph.

**K-0143.** The maximum speed at which the given airplane can be operated in turbulent air is

(see Figure 8)

(1) 65 mph.
(2) 100 mph.
(3) 165 mph.
(4) 198 mph.

**K-0144.** The maximum speed at which the given airplane can be operated in smooth air is

(see Figure 8)

(1) 100 mph.
(2) 165 mph.
(3) 65 mph.
(4) 198 mph.

**K-0145.** Altimeter B indicates

(see Figure 7)

(1) 1,500 ft.
(2) 4,500 ft.
(3) 14,500 ft.
(4) 15,500 ft.

**K-0146.** Altimeter C indicates

(see Figure 7)

(1) 9,500 ft.
(2) 10,950 ft.
(3) 15,940 ft.
(4) 19,500 ft.

**K-0147.** Which altimeter(s) indicate(s) more than 10,000 ft?

(see Figure 7)

(1) A, B and C.
(2) A and B.
(3) A only.
(4) B only.

**K-0148.** Zero level from which measures a pneumatic aircraft altimeter is the

(1) mean sea level.
(2) airport.
(3) pressure level set on the barometric pressure scale of the altimeter.
(4) ground surface vertically below the aircraft.

**K-0149.** The pneumatic altimeter shows aircraft altitude above the

(1) ground surface.
(2) airfield.
(3) mean sea level.
(4) pressure surface set on the instrument.

**K-0150.** The barometric pressure scale on an aircraft altimeter serves for

(1) air pressure reading at flight altitude.
(2) pressure difference reading between the air pressure at the airport level and the air pressure at the sea level.
(3) exact setting of the altimeter during the annual inspection in a service facility.
(4) setting of pressure value at the pressure level, from which will the altimeter measure altitudes.

**K-0151.** If set to QNH, what will be aircraft altimeter reading after landing?

(1) Zero.
(2) Airfield height above the mean sea level.
(3) Airfield height above the pressure plane 1013,2 hPa.
(4) Airfield pressure altitude above the standard value.

**K-0152.** What height does the altimeter indicate if set to local QNH?

(1) Height above sea level.
(2) Height above airport.
(3) Height above terrain.
(4) Flight level.

**K-0153.** Which altitudes indicates an aircraft altimeter if set to standard atmospheric pressure?

(1) Absolute altitudes.
(2) Relative altitudes.
(3) True altitudes above the ground surface.
(4) Flight levels.

**K-0154.** What would be the indication of an aircraft altimeter if the pilot fails to set QNH during descent, and therefore lives the instrument set to the standard pressure?

(1) Zero.
(2) The airport elevation.
(3) The indication is not usable.
(4) The airport heigh above the pressure plane 1013.2 hPa.

**K-0155.** If a pilot changes the altimeter setting to a lower pressure, the altitude indication will

(1) decrease.
(2 stay unchanged.
(3) increase.

**K-0156.** When set to QFE pressure, an altimeter will indicate the

(1) altitude above sea level.
(2) height above the airfield.
(3) true altitude above ground surface.
(4) flight level.

**K-0157.** If an altimeter is set to QFE pressure, the instrument indication after landing will be

(1) zero.
(2) the airfield elevation.
(3) the airfield height above the pressure plain 1013.2 hPa.
(4) the airfield pressure height above the standard value.

**K-0158.** If an altimeter is set to the atmospheric pressure at the airfield level, it will indicate

(1) the airfield elevation.
(2) the altitude zero.
(3) non of specified altitudes.
(4) the density altitude.

**K-0159.** If a flight is made from an area of high pressure into an area of low pressure without the altimeter setting being adjusted, the aircraft true altitude

(1) decreases.
(2) increases.
(3) stays unchanged.

**K-0160.** What effect would an approaching low pressure system have on the altimeter in a parked aircraft?

(1) No effect, since the aircraft is neither climbing nor descending.
(2) The indicated altitude would increase due to decreasing barometric pressure.
(3) The indicated altitude would decrease due to decreasing barometric pressure.
(4) The altimeter would fluctuate due to increasing atmospheric instability.

**K-0161.** When parking an aircraft at night, the altimeter correctly indicates the height of the airport (1,000 ft MSL). The next morning, the altimeter indicates 1,200 ft. If the altimeter setting has not been changed, what is the most likely reason for the indicated change of altitude?

(1) The altimeter setting has increased.
(2) The barometric pressure has increased.
(3) The barometric pressure has decreased.

**K-0162.** Under what conditions is the indicated altitude the same as the true altitude?

(1) If the altimeter has no mechanical error.
(2) When under standard conditions.
(3) When above 5,500 m with the altimeter set at 1013.2 hPa.
(4) If the altimeter indication is corrected for a non-standard pressure and temperature at sea level.

**K-0163.** Which conditions would cause the altimeter to indicate a higher altitude than true altitude?

(1) Air temperature lower than standard.
(2) Atmospheric pressure lower than standard.
(3) Air temperature higher than standard.

**K-0164.** How do variations in temperature affect the altimeter?

(1) Lower temperatures lower the pressure levels and the indicated altitude is lower than true altitude.
(2) Pressure levels are raised on warm days and the indicated altitude is lower than true altitude.
(3) Higher temperatures expand the pressure levels and the indicated altitude is higher than true altitude.

**K-0165.** A flight just near the peak in Alps during a cold winter day with the altimeter setting on local QNH. What will be the altitude reading against peak's altitude?

(1) Greater.
(2) Lesser.
(3) Exactly the same.
(4) Answer is not possible.

**K-0166.** A flight just near the peak in Alps during a hot summer day with the altimeter setting on local QNH. What will be the altitude reading against peak's altitude?

(1) Greater.
(2) Lesser.
(3) Exactly the same.
(4) Answer is not possible.

**K-0167.** Altimeter A indicates

(see Figure 7)

(1) 500 ft.
(2) 1,500 ft.
(3) 10,500 ft.
(4) 15,000 ft.

**K-0168.** What information is indicated when the needle of a turn-and-slip indicator is left of center and the ball is right of center, as shown on the picture C?

(see Figure 9)

(1) Left turn, Skidding outwards.
(2) Right turn, Skidding outwards.
(3) Left turn, Slipping inwards.
(4) Right turn, Slipping inwards.

**K-0169.** Which illustration corresponds to the instrument indication during left turn while taxiing?
(see Figure 9)

(1) A.
(2) B.
(3) C.

**K-0170.** When in an uncoordinated right turn with the ball of a turn-and-slip indicator deflected left of center, the pilot would correct the situation by

(1) increasing the bank or decreasing the rate of yaw.
(2) deflecting more rudder to the right.
(3) decreasing the bank.
(4) decreasing the bank or increasing the rate of yaw.

**K-0171.** Which instrument(s) operate(s) on the basis of the gyroscopic precession?

(1) The turn-and-slip indicator and turn coordinator.
(2) The attitude indicator.
(3) The gyroscopic heading indicator.
(4) All above is correct.

**K-0172.** Gyroscopic instruments are

(1) the airspeed indicator and magnetic compass.
(2) the slip-skid indicator and magnetic compass.
(3) the longitudinal slope indicator and magnetic compass.
(4) the turn-and-slip indicator and attitude indicator.

**K-0173.** The rotor of a vacuum-driven-gyroscope is protected against excessive speed by the

(1) air filter.
(2) vacuum relief valve.
(3) suction gauge.

**K-0174.** Externally-mounted ventury tube-driven gyroscopic instruments are up to speed

(1) immediately after engine start-up.
(2) as soon as the aircraft starts moving.
(3) provided the weather is windy enough.
(4) after couple of minutes of flying with normal airspeed.

**K-0175.** The cardan-mounted gyroscope with 3 free axes

(1) cannot maintain direction in space.
(2) aligns own spin axis with Earth spin axis.
(3) follows by own spin axis rotation of Earth.
(4) maintains own attitude in space.

**K-0176.** Which instrument(s) indicate(s) movements around the aircraft's vertical axis?

(1) The artificial horizon.
(2) The gyroscopic compass.
(3) The turn-and-slip and turn coordinator.

**K-0177.** A turn-and-slip provides an indication of movement of aircraft around which axis?

(1) Longitudinal axis.
(2) Vertical axis.
(3) Lateral axis.
(4) Earth axis.

**K-0178.** What does the turn-and-slip indicator display?

(1) Pitch attitude.
(2) Direction of turn and angular rate about vertical axis.
(3) Movements around the longitudinal axis.
(4) Movements around the lateral axis.

**K-0179.** In addition to our feeling we can recognize a side skidding of an aircraft by a

(1) displacement of the turn-and-slip pointer.
(2) displacement of the ball of the turn-and-slip.
(3) bank of the artificial horizon.
(4) compass spinning.

**K-0180.** Besides of pilot´s feeling the indication of side slipping or skidding is

(1) displacement of the turn-and-slip pointer.
(2) displacement of the turn-and-slip ball or displacement of the string on the canopy at gliders.
(3) bank of the phantom airplane at an artificial horizon.
(4) compass spinning.

**K-0181.** The ball in a turn-and-slip indicator provides the pilot with an information about the

(1) aircraft attitude in space.
(2) direction of the normal.
(3) angular velocity around the vertical axis of an aircraft.
(4) direction of the resultant between the gravity and the centrifugal force.

**K-0182.** What aerodynamic information is indicated when the needle and the ball of a turn-and-slip indicator are both centered?

(1) The aircraft is neither skidding nor slipping, and it is not turning.
(2) The aircraft is climbing.
(3) The aircraft is flying straight and level.

**K-0183.** What is the proper turn-and-slip indication during a left turn while taxiing?

(1) The pointer should be to the right and the ball should be to the left.
(2) The pointer should be to the left and the ball should be to the right.
(3) The pointer should be to the left and the ball should be centered.
(4) Non of the above is correct.

**K-0184.** What information is indicated when the needle and ball of a turn-and-slip indicator are both deviated to the right, as shown on the picture B?

(see Figure 9)

(1) Left turn, Skidding outwards.
(2) Right turn, Skidding outwards.
(3) Left turn, Slipping inwards.
(4) Right turn, Slipping inwards.

**K-0185.** What could be the reason for the erroneous indication of the gyroscopic heading indicator on a standard equipped light sport airplane?

(1) Electrical failure.
(2) Insufficient suction in the vacuum system.
(3) Pitot tube icing.
(4) High ambient temperature.

**K-0186.** A turn coordinator provides an indication of the

(1) movement of the aircraft about the yaw and roll axes.
(2) angle of bank up to but not exceeding 30°.
(3) attitude of the aircraft with reference to the longitudinal axis.

**K-0187.** How long will an aircraft take to complete the 360° turn if the turn coordinator shows the indication as shown?

(see Figure 10)

(1) 30 seconds.
(2) 60 seconds.
(3) 120 seconds.
(4) 240 seconds.

**K-0188.** An attitude indicator provides an indication of the

(1) rate-of-turn with reference to the vertical and lateral axes.
(2) attitude with reference to the longitudinal and lateral axes.
(3) attitude with reference to the vertical axis only.
(4) rate-of-turn with reference to all three axes.

**K-0189.** What is the main advantage of the gyroscopic heading indicator?

(1) It is easier to read than a compass.
(2) It indicates directions rather than headings.
(3) It is not subject to the turning errors of the magnetic compass.
(4) It maintains a constant reading.

**K-0190.** To receive accurate indications during flight from a heading indicator, the instrument must be

(1) set prior to flight on a known heading.
(2) periodically realigned with the magnetic compass as the gyro precesses.
(3) calibrated on a compass rose at regular intervals.

**K-0191.** When decelerating on a heading of due East in the Northern Hemisphere, the magnetic compass will indicate

(1) a turn to the left (i.e. toward North).
(2) a turn to the right (i.e. toward South).
(3) correctly.

**K-0192.** When accelerating on a heading of due West in the Northern Hemisphere, the magnetic compass will indicate

(1) a turn to the left (i.e. toward South).
(2) a turn to the right (i.e. toward North).
(3) correctly.

**K-0193.** After having accelerated on a heading of 90° and settled down to a new steady cruising speed, the magnetic compass will have

(1) read correctly throughout the acceleration.
(2) initially indicated a false heading change toward North, before gradually returning to a correct reading of 90°.
(3) initially indicated a false heading change toward South, before gradually returning to a correct reading of 90°.
(4) initially indicated a false heading change toward North, and will continue to indicate incorrectly even after the speed settles down.

**K-0194.** The liquid in a magnetic compass serves for

(1) temperature compensation.
(2) damping of the compass rose oscillations.
(3) decreasing of the magnetic dip.
(4) easier instrument reading because of its magnifying effect.

**K-0195.** The term "magnetic dip" stands for the

(1) angle between the direction to the magnetic north and direction to the true north.
(2) angle between the longitudinal axis of an aircraft and the direction to the true north.
(3) angle between the direction of the magnetic field and the horizontal plane.
(4) deviation of a compass caused by electrical fields.

**K-0196.** A compass error, caused by the influence of metall parts in the aircraft, is called the

(1) compass deviation.
(2) compass turning error.
(3) magnetic dip.
(4) magnetic variation.

K-0197. The compass deviation is the

(1) angle between the longitudinal axis of an aircraft and the heading line.
(2) deviation of the compass indication caused by variations in airspeed.
(3) deviation of the compass indication caused by the magnetic influence of metal parts and electromagnetic fields in an aircraft.
(4) heading correction due to crosswind.

K-0198. What is the object of calibrating (or "swinging") an aeroplane compass?

(1) Magnetic inclination.
(2) Compass turning error.
(3) Magnetic variation.
(4) Compass deviation.

K-0199. Where is the magnetic dip 90°?

(1) At the magnetic equator.
(2) At the magnetic poles.
(3) In the area of middle geographic latitudes.
(4) At the geographic pole of northern hemisphere.

K-0200. The area with a zero magnetic dip value lies over

(1) both magnetic poles.
(2) middle geographic latitudes.
(3) both geographic poles.
(4) the magnetic Equator.

K-0201. When accelerating on a heading of due South in the Northern Hemisphere, the magnetic compass will indicate

(1) a turn to the left.
(2) a turn to the right.
(3) correctly.

K-0202. When turning on a heading of due East in the Northern Hemisphere, the pilot should start stopping the turn

(1) 10°-20° after the desired heading.
(2) 20°-30° before the desired heading.
(3) when the compass indicates E.

K-0203. When turning onto northerly heading on northen hemisphere, the pilot should

(1) overshoot the desired heading for 10°-20°.
(2) undershoot the desired heading for 20°-30°.
(3) stop the turn immediately the compass indicates the desired heading.

K-0204. When terminating the turn on a heading of due South in the Northern Hemisphere, the pilot should know that he(she) must start leveling the wings

(1) 10°-20° after indication of the desired heading.
(2) 20°-30° before indication of the desired heading.
(3) exactly in the desired heading.

K-0205. On which heading(s) is the compass acceleration error of an aircraft the greatest?

(1) N and S.
(2) N.
(3) S.
(4) E and W.

K-0206. Turning from North-East to North-West by the shortest way, a magnetic compass will

(1) indicate correctly.
(2) over-indicate the number of degrees turned.
(3) under-indicate the number of degrees turned.

K-0207. By using a 15-degree banked left turn a pilot is changing the heading from 270° onto 180°. What compass heading should he observe for start of leveling-off the turn?

(1) 180°.
(2) 160°.
(3) 210°.
(4) 230°.

K-0208. By using a 15-degree banked left turn a pilot is changing the heading from 070° onto 360°. What compass heading should he observe for start of leveling-off the turn?

(1) 030°.
(2) 360°.
(3) 330°.
(4) 010°.

K-0209. The turning error of a magnetic compass is caused by

(1) the compass deviation.
(2) the magnetic dip and radial acceleration in a turn.
(3) the torsion and magnetic dip.
(4) the magnetic variation and radial acceleration in a turn.

K-0210. On which heading(s) is the compass turning error of an aircraft the greatest?

(1) N and S.
(2) N.
(3) S.
(4) E and W.

K-0211. Where has the turning error of a magnetic compass zero value?

(1) At the magnetic equator.
(2) Over large water areas.
(3) At the magnetic poles.
(4) Over large desert areas.

K-0212. When stopping a turn on a heading of due North in the Northern Hemisphere, the magnetic compass will

(1) indicate correctly throughout.
(2) under-indicate the amount of turn, requiring the pilot to stop the turn before the desired heading is indicated.
(3) over-indicate the amount of turn, requiring the pilot to stop the turn after the desired heading is indicated.

K-0213. When turning through East in the Northern Hemisphere, the magnetic compass will

(1) indicate correctly.
(2) under-indicate the amount of turn, requiring the pilot to stop the turn before the desired heading is indicated.
(3) over-indicate the amount of turn, requiring the pilot to stop the turn after the desired heading is indicated.

K-0214. What should be the indication on the magnetic compass as you roll into a standard rate turn to the right from a south heading in the Northern Hemisphere?

(1) The compass will initially indicate a turn to the left.
(2) The compass will indicate a turn to the right, but at a faster rate than is actually occurring.
(3) The compass will remain on south for a short time, then gradually catch up to the magnetic heading of the airplane.

K-0215. When turning through West in the Northern Hemisphere, the magnetic compass will

(1) indicate correctly.
(2) under-indicate the amount of turn, requiring the pilot to stop the turn before the desired heading is indicated.
(3) over-indicate the amount of turn, requiring the pilot to stop the turn after the desired heading is indicated.

K-0216. When terminating the turn on a heading of due South in the Northern Hemisphere, the pilot should know that he(she) must start leveling the wings

(1) 10°-20° after indication of the desired heading.
(2) 20°-30° before indication of the desired heading.
(3) when the compass indicates W.

K-0217. When turning through North in the Northern Hemisphere, the direct reading compass will

(1) indicate correctly throughout the turn.
(2) show an exaggerated turn when turning either left or right.
(3) show an exaggerated turn when turning left, but under-indicate a right turn.
(4) show an exaggerated turn when turning right, but under-indicate a left turn.
(5) under-indicate turns both left and right.

K-0218. When turning through East in the Northern Hemisphere, the direct reading compass will

(1) indicate correctly.
(2) show an exaggerated turn when turning either left or right.
(3) show an exaggerated turn when turning left, but under-indicate a right turn.
(4) show an exaggerated turn when turning right, but under-indicate a left turn.
(5) under-indicate turns both left and right.

K-0219. When turning through West in the Northern Hemisphere, the direct reading compass will

(1) indicate correctly throughout the turn.
(2) show an exaggerated turn when turning either left or right.
(3) show an exaggerated turn when turning left, but under-indicate a right turn.
(4) show an exaggerated turn when turning right, but under-indicate a left turn.
(5) under-indicate turns both left and right.

## PRINCIPLES OF FLIGHT (A)

**A-0001.** The term "angle of attack" is defined as the angle

(1) formed by the longitudinal axis of the airplane and the relative wind.
(2) formed by the longitudinal axis of the airplane and the chord line of the wing.
(3) between the wing chord line and the relative wind.
(4) between the horizontal tail chord line and the wing chord line.

**A-0002.** A symmetrical airfoil

(1) does not produce any lift.
(2) has minimum induced drag at positive angle of attack.
(3) center of pressure position is practically unindependent of the angle of attack.
(4) has high lift-drag ratio.

**A-0003.** The point of tangency between the line drawn from the coordinate point of origin and the wing polar denotes the

(1) critical angle of attack.
(2) minimum-rate-of-descent angle of attack.
(3) null-lift angle of attack.
(4) best lift-drag ratio angle of attack.

**A-0004.** The angle between the relative wind and the wing chord line is

(1) angle of incidence.
(2) angle of attack.
(3) gliding angle.
(4) climb angle.

**A-0005.** Which forces create the resulting aerodynamic force?

(1) Lift and velocity.
(2) Drag and velocity.
(3) Lift and drag.
(4) Velocity and profile drag.

**A-0006.** At which angle of attack should we normally expect beginning of a stall?

(1) 3° - 5°.
(2) 5° - 10°.
(3) 10° - 18°.
(4) grater than 25°.

**A-0007.** The angle of attack at which an airplane wing stalls will

(1) increase if the CG is moved forward.
(2) change with an increase in gross weight.
(3) remain the same regardless of gross weight.
(4) increase if the CG is moved aft.

**A-0008.** Which statement relates to Bernoulli`s principle?

(1) For every action there is an equal and opposite reaction.
(2) An additional upward force is generated as the lower surface of the wing deflects air downward.
(3) Air traveling faster over the curved upper surface of an airfoil causes lower pressure on the top surface.

**A-0009.** The angle of incidence is

(1) the angle between direction of relative airflow and the chord line of the wing.
(2) the angle between horizontal stabilizer and the chord line of the elevator.
(3) distance between wing leading edge and the longitudinal axis of the aircraft.
(4) the angle between the chord line of the wing and the longitudinal axis of the aircraft.

**A-0010.** What is the aspect ratio?

(1) The ratio of wingspan to mean chord.
(2) The ratio of chord to wingspan.
(3) The ratio of drag to thrust.
(4) The ratio of thickness to chord.

**A-0011.** What happens to the lift and drag of an airfoil when the angle of attack is increased beyond the stalling angle?

(1) Lift and drag both start decreasing.
(2) Lift remains increasing and drag starts decreasing.
(3) Lift starts decreasing and drag remains increasing.
(4) Lift and drag remain the same beyond the stalling angle.

**A-0012.** What is the relationship between lift and aspect ratio?

(1) As lift increases, aspect ratio will increase.
(2) High (numeric value) aspect ration means more lift for a given area of wing.
(3) High (numeric value) aspect ration means less lift for a given area of wing.

**A-0013.** On the wing polar diagram, the angle of attack for a minimum sink is marked as (see Figure 1)

(1) 2.
(2) 4.
(3) 5.
(4) 6.

**A-0014.** The best angle of attack on the wing polar diagram is marked as

(see Figure 1)

(1) 2.
(2) 4.
(3) 5.
(4) 6.

**A-0015.** The critical angle of attack on the wing polar diagram is marked as

(see Figure 1)

(1) 1.
(2) 4.
(3) 5.
(4) 6.

**A-0016.** The angle of attack for a minimum drag on the wing polar diagram is marked as

(see Figure 1)

(1) 3.
(2) 4.
(3) 5.
(4) 7.

**A-0017.** Which wing shape has the greatest induction drag?

(1) Rectangular.
(2) Taper.
(3) Elliptical.
(4) Double taper.

**A-0018.** When climbing out of ground effect,

(1) induced drag increases.
(2) induced drag decreases.
(3) induced drag remains the same.
(4) induced drag increases sharply.

**A-0019.** What happens to the center of pressure of an airfoil when the angle of attack is increased toward the stalling angle?

(1) It moves aft.
(2) It does not change its position.
(3) It moves upward.
(4) It moves forward.

**A-0020.** Changes in the center of pressure of a wing affect the aircraft`s

(1) lift/drag ratio.
(2) lifting capacity.
(3) aerodynamic balance and controllability.

**A-0021.** Drag coefficient of a body mainly depends on the

(1) mass of the body.
(2) shape and attitude of the body in an airstream.
(3) air temperature.
(4) substance from which the body is created.

**A-0022.** Which of the shapes of the same size and velocity has the greatest aerodynamic drag?

(1) Flat plate.
(2) Tear-shaped body.
(3) Hollow half-ball, opened toward airstream.
(4) Full ball.

**A-0023.** If the velocity of an airstream is doubled the drag coefficient will

(1) double.
(2) not change.
(3) increase 4-times.
(4) increase 6-times.

**A-0024.** Aerodynamic drag force depends on

(1) form drag, mass and the material from which the body is created.
(2) drag coefficient, form drag, and total surface area of the body.
(3) drag coefficient, total surface area, dynamic pressure and lift coefficient.
(4) drag coefficient, perpendicular surface area of the body, and density and velocity of the air.

**A-0025.** Aerodynamic drag, caused by the vortices due to pressure equalizing at wingtips, is called

(1) induced drag.
(2) interference drag.
(3) total drag.
(4) form drag.

**A-0026.** What is the direction of rotation of the wingtip vortices?

(1) Clockwise near the left wingtip and counterclockwise near the right wingtip, viewing to the direction of flight.
(2) Counterclockwise near the left wingtip and clockwise near the right wingtip, viewing to the direction of flight.
(3) From the lower surface of the wing toward upward and forward thus their axis is parallel to the wing spare.

**A-0027.** What is the relationship between induced drag and airspeed?

(1) Induced drag decreases as airspeed decreases.
(2) Induced drag increases as airspeed decreases.
(3) Induced drag is constant through the entire speed range.
(4) Induced drag increases only at the speeds above 180 kt.

A-0028. How will lift coefficient behave when a pilot gradually increases the angle of attack by pulling on the control column or the stick?

(1) It increases and reaches maximum value at the critical angle of attack.
(2) It increases and reaches maximum value at the angle of attack for the best glide.
(3) It decreases and reaches minimum value at the angle of attack for minimum sink.
(4) It decreases and reaches minimum value at the angle of attack for minimum drag.

A-0029. Which two conditions normally increase lift?

(1) Decreasing of the angle of attack and increasing the angle of incidence.
(2) Increasing of the pitch angle and decreasing the velocity.
(3) Increasing of the angle of attack and increasing the velocity.
(4) Decreasing of the angle of incidence and increasing the velocity.

A-0030. Extended wing flaps increase wing curvature. How does this affect lift and drag?

(1) Both increase.
(2) Both decrease.
(3) Lift increases, drag decreases.
(4) Lift decreases, drag increases.

A-0031. The best gliding ratio of an aircraft

(1) is significantly greater at higher aircaft mass.
(2) depends on aircraft CG position.
(3) is practically unindependent of aircraft mass.

A-0032. In gliding flight, which force is equal to the weight?

(1) Lift force.
(2) Resultant of the lift and drag forces.
(3) Vertical component of the lift force.
(4) Resultant of the lift force and velocity.

A-0033. The four forces acting on an airplane in flight are

(1) lift, weight, thrust, and drag.
(2) lift, gravity, power, and friction.
(3) lift, weight, gravity, and thrust.

A-0034. When are the four forces that act on an airplane in equilibrium?

(1) When the aircraft is at rest on the ground.
(2) During an unaccelerated flight.
(3) When the aircraft is accelerating.

A-0035. What is the relationship of lift, drag, thrust, and weight when the airplane is in straight-and-level flight?

(1) Lift equals weight and thrust equals drag.
(2) Lift, drag, and weight equal thrust.
(3) Lift and weight equal thrust and drag.

A-0036. Lift generated by an airfoil is

(1) proportional to the square of the velocity of the relative airflow.
(2) proportional to the velocity of the relative airflow.
(3) inversely proportional to the air density.
(4) inversely proportional to the wing surface area.

A-0037. How does increased wing loading affect the stalling speed of an aircraft?

(1) Stalling speed is greater.
(2) Stalling speed is least.
(3) Stalling speed remains unchanged because it depends exclusively on bank angle.
(4) Stalling speed remains unchanged because it depends on bank angle and flaps position only.

A-0038. Approximately for what percent will the stall speed increase if wing loading increases by 20%?

(1) 0%.
(2) 10%.
(3) 30%.
(4) 20%.

A-0039. What is the approximate percentage increase of a minimum speed if an aircraft mass is increased for 40%?

(1) 0%.
(2) 100%.
(3) 40%.
(4) 18%.

A-0040. The amount of excess load that can be imposed on the wing of an aircraft depends upon the

(1) position of the CG.
(2) speed of the aircraft.
(3) abruptness at which the load is applied.

A-0041. Compared with solo flying, when flying with passengers on board, the pilot must be aware that

(1) the stalling speed is least.
(2) the critical angle of attack is better, e.i. greater.
(3) the maximum glide ratio is better in case of engine failure.
(4) the stalling speed is greater.

**A-0042.** In a turn, the lift force is

(1) equal to the lift force in straight-and-level flight.
(2) always twice as much as the lift force in straight-and-level.
(3) greater than the lift force in straight-and-level.
(4) lesser than the lift force in straight-and-level flight because the centrifugal force compensates for a part of the lift force.

**A-0043.** In a turn, an airstream separation from the wing could cause

(1) greater control forces.
(2) skidding.
(3) slipping.
(4) a spin.

**A-0044.** Compared to a straight-and-level flight, which basic flight maneuver increases the load factor on an aircraft?

(1) Climbs.
(2) Turns.
(3) Stalls.

**A-0045.** What force makes a fixed-wing aircraft or helicopter turn?

(1) Vertical component of lift.
(2) Centrifugal force.
(3) Increased lift.
(4) Horizontal component of lift.

**A-0046.** Increased velocity in a turn must be maintained

(1) to prevent slipping toward lowered wing.
(2) to prevent bank oscillations.
(3) to compensate for adverse yaw.
(4) to keep the wing angle of attack the same as when in straight-and-level flight.

**A-0047.** If an airplane weights 3,300 pounds, what approximate weight would the airplane structure be required to support during a 20° banked turn while maintaining altitude?

(see Figure 2)

(1) 1,200 lbs.
(2) 3,921 lbs.
(3) 3,510 lbs.
(4) 6,850 lbs.

**A-0048.** If an airplane weights 4,600 pounds, what approximate weight would the airplane structure be required to support during a 50° banked turn while maintaining altitude?

(see Figure 2)

(1) 5,400 lbs.
(2) 5,720 lbs.
(3) 8,180 lbs.
(4) 7,160 lbs.

**A-0049.** Stalling speed in a turn

(1) decreases if bank increases.
(2) increases if rate of turn increases.
(3) decreases if radius of turn decreases.
(4) does not depend on bank and radius of turn.

**A-0050.** What is the maximum allowed bank angle when flying an aircraft with limiting load factor of +2,5 G?

(see Figure 2)

(1) 66°.
(2) 63°.
(3) 58°.
(4) 54°.

**A-0051.** What is the maximum allowed bank angle when flying an aircraft with limiting load factor of +3,8 G?

(see Figure 2)

(1) 75°.
(2) 71°.
(3) 67°.
(4) 63°.

**A-0052.** What is the load factor in a 60° banked level turn?

(see Figure 2)

(1) 1.5 G.
(2) 2.0 G.
(3) 0.5 G.
(4) 1.0 G.

**A-0053.** Can an aicraft be stalled in straight and level cruise flight?

(1) No. A wing can only be stalled at low speed.
(2) No. In normal cruise flight, a wing can only be stalled in a turn.
(3) Yes. A wing can be immediately stalled by moving the elevator to its limit.
(4) Yes. A wing can be stalled at any speed by abrupt control movement.

**A-0054.** Which of the following flight circumstances is the most dangerous for an airplane or powered hang glider to develop the spin?

(1) Close to a stall, banked with closed throttle.
(2) Steep diving spiral.
(3) High nose attitude.

**A-0055.** What happens to the indicated airspeed at which an airplane stalls when the bank angle is increased during a level turn?

(1) Stall speed increases in direct proportion to the angle of bank.
(2) Stall speed decreases as angle of bank increases.
(3) Stall speed remains unchanged.
(4) Stall speed increases in proportion to the square root of the load factor imposed by the angle of bank.

A-0056. While turning, if a pilot

(1) lowers wing flaps, the stalling speed will increase.
(2) retracts wing flaps, the stalling speed will increase.
(3) retracts wing flaps, forward pressure on the control column or the stick should be applied.

A-0057. With an increase of altitude the indicated stall speed will

(1) decrease progresivelly.
(2) increase progresivelly.
(3) stay unchanged.

A-0058. Does an aircraft wing stall at unique angle of attack?

(1) No, because a wing stalls at unique velocity rather than unique angle of attack.
(2) Yes, always.
(3) No, because the stalling speed depends on aircraft's mass and bank angle.

A-0059. Under which circumstances can an aircraft wing stall?

(1) Only when the nose of the aircraft is high above the horizon and the velocity is low.
(2) Only when the velocity decreases below the value from the manual.
(3) At any velocity and attitude.
(4) Only when the nose of the aircraft is high above the horizon.

A-0060. Is it possible for the spin to develop without stalling the wing?

(1) Yes, at the speeds, higher than stalling speed.
(2) Yes, if the center of gravity is located in the aft position.
(3) No, because the spin is the result and continuation of the stall.

A-0061. What would be the control and airspeed indications during a developed spin?

(1) Controls = firm; airspeed = increasing rapidly.
(2) Controls = sloppy; airspeed = relatively constant.
(3) Controls = firm; airspeed = relatively constant.
(4) Controls = sloppy; airspeed = increasing rapidly.

A-0062. What would be the control and airspeed indications during a developed spiral?

(1) Controls = firm; airspeed = increasing rapidly.
(2) Controls = sloppy; airspeed = relatively constant.
(3) Controls = firm; airspeed = relatively constant.
(4) Controls = sloppy; airspeed = increasing rapidly.

A-0063. The wing of a powered aircaft stalls when

(1) the nose is high against the longitudinal axis.
(2) the airspeed is too low for a given angle of incidence.
(3) engine power is too low.
(4) the angle of attack approaches the stalling angle.

A-0064. During a turn in windy conditions, the indicated stalling speed when flying toward the wind, compared with the indicated stalling speed when flying with the tailwind, is

(1) increased by one half of the longitudinal wind component.
(2) decreased by one half of the longitudinal wind component.
(3) decreased by the longitudinal wind component.
(4) the same, because the wind does not affect the stalling speed of an aircraft.

A-0065. The airspeed at which a pilot will not yet overstress the airframe of an aicraft by momentarily up-deflecting the elevator is

(1) $V_A$.
(2) $V_B$.
(3) $V_{FE}$.
(4) $V_S$.

A-0066. As an altitude increases the true stalling airspeed (TAS)

(1) increases, while the indicated stalling airspeed (IAS) remains unchanged.
(2) decreases, while the indicated stalling airspeed (IAS) increases.
(3) does not change as well the indicated stalling airspeed (IAS).
(4) increases together with the indicated stalling airspeed (IAS).

A-0067. What is the purpose of geometric and aerodynamic twisting of the wing?

(1) Better wing rigidity and bend resistivity.
(2) Lower gliding airspeed with flaps exetended.
(3) Better aileron effectivness at high angles of attack and lower induced drag.
(4) Better wing torsion resistivity.

A-0068. A rectangular wing, which has a tendency to stall first at the wing root when approaching the stalling angle, is a convenient solution because

(1) so created vortices strike against tail surfaces thus warning the pilot if impending stall, before the airstream starts separating from the rest of the wing.
(2) when during approach to stall the tendency to banking is lesser.
(3) ailerons stay efficient at high angle of attack.
(4) all of the above is correct.

A-0069. "Wing loading" is

(1) maximum mass that wing can support.
(2) maximum take-off mass.
(3) mass supported per unit area of a wing.
(4) mass of the air substituted by an aircraft.

A-0070. A wing shape with the angle of incidence at the wingtip lower than the angle of incidence at the wingroot is called

(1) geometrically twisted wing.
(2) dihedral.
(3) swept wing.
(4) aerodynamically twisted wing.

A-0071. A wing shape with the same angle of incidence along the wingspan but with the different airfoils at the wingroot and at the wingtip is called

(1) aspect ratio.
(2) geometrically twisted wing.
(3) aerodynamically twisted wing.

A-0072. Because of a down-deflected aileron

(1) both lift and drag increase.
(2) moment around lateral axis changes significantly.
(3) only lift increases.
(4) only drag increases.

A-0073. What control responds are needed for recovering an airplane or glider from a left bank, caused by a thermal strike under the left wing?

(1) Control stick to the left together with a pressure on the right pedal.
(2) Control stick to the left only.
(3) Control stick to the left together with a pressure on the left pedal.
(4) Control stick to the left first, followed by a pressure on the right pedal.

A-0074. At angles of attack close to the stalling angle banks should be recovered using

(1) ailerons mostly.
(2) elevator only.
(3) ailerons exclusively.
(4) rudder mostly.

A-0075. What is the secondary effect of a control stick move to the right?

(1) Adverse yaw to the left.
(2) No secondary effect.
(3) Uncontrolled roll movements at high angle of attack.
(4) Adverse yaw to the right.

A-0076. During a straight flight, what kind of adverse effect is caused by elevator deflection?

(1) Banking to the left.
(2) Yawing to the right.
(3) Yawing to the left.
(4) When deflected, an elevator has no adverse effect.

A-0077. Which adverse effect is caused by elevator deflection during level flight?

(1) No effect, because elevator deflection affects movement around the lateral axis only.
(2) Banking to the left.
(3) Banking to the right.
(4) Banking to the right and rotation around the vertical axis to the right.

A-0078. During a level flight, what is the adverse effect of a rudder, deflected to the left?

(1) Banking to the left.
(2) Banking to the right.
(3) The rudder deflection has no adverse effect.

A-0079. An airplane has been loaded in such a manner that the CG is located aft of the aft CG limit. One undesirable flight characteristic a pilot might experience with this airplane would be

(1) a longer take-off run.
(2) difficulty in recovering from a stalled condition.
(3) stalling at higher-than-normal airspeed.
(4) inability to flare at landing.

A-0080. Immediately after the angle of attack of an airfoil exceeds the stalling angle, the center of pressure

(1) moves forward.
(2) moves rearward.
(3) moves forward, then rearward.
(4) moves rearward, then forward.

A-0081. If an airplane or glider is loaded incorrectly so that the CG is forward of the allowable range, then the elevator force required to flare the aircraft for landing will be

(1) the same as usual.
(2) greater than usual.
(3) less than usual.

A-0082. What is the longitudinal axis of an airplane?

(1) An axis which runs from nose to tail through the center of gravity.
(2) An axis which runs from wingtip to wingtip through the center of gravity.
(3) An axis which runs from wingtip to wingtip through the center of pressure.

A-0083. How do we call the stability around the longitudinal axis?

(1) Longitudinal stability.
(2) Lateral stability.
(3) Directional stability.

A-0084. What determines the stability around the longitudinal axis (lateral stability) of an aircraft?

(1) The angle of sweepback.
(2) The aerodynamic washout of a wing.
(3) The aerodynamic balancing of ailerons.
(4) The angle that each wing makes with the horizontal and a low position of the center of gravity.

A-0085. Which parts of an aircraft ensure stability around the vertical axis?

(1) Vertical stabilizer only.
(2) Rudder only.
(3) Dihedral of the wings.
(4) Entire vertical tail surfaces.

A-0086. Besides the other factors, what else determines the stability around the lateral axis (longitudinal stability) of an aircraft?

(1) The effectiveness and design of the horizontal tail surfaces.
(2) The dihedral angle.
(3) The variable angle of incidence.
(4) The angle of sweepback of the wings.

A-0087. What determines the longitudinal stability of an airplane?

(1) The location of the CG with respect to the center of gravity.
(2) The effectiveness of the horizontal stabilizer, rudder, and rudder trim tab.
(3) The relationship of thrust and lift to weight and drag.
(4) Dihedral and sweepback of the wings.

A-0088. What is the overall tendency of an aircraft to return to its original position, following a series of dampening oscillations?

(1) Positive dynamic stability.
(2) Pitch stability.
(3) Static stability.
(4) Choice 1) and 2).

A-0089. Which CG position is the most dangerous regarding longitudinal stability of an aircraft?

(1) Backward position.
(2) Forward position.
(3) Too excessive lateral displacement.
(4) Too low position.

A-0090. Why is necessary for the pilot to keep the center of gravity of an aircraft within the limits?

(1) in order not to overstress the aircraft.
(2) to ensure the stability of the aircraft remains within the design limitations.
(3) to ensure that the stalling speed is as low as possible.
(4) to ensure that the stalling speed is as high as possible.

A-0091. When does P-factor cause the airplane to yaw to the left?

(1) When at low angles of attack.
(2) When at high angles of attack.
(3) When at high airspeeds.

A-0092. The purpose of aerodynamic compensation of flight controls is

(1) reducing required area of control surfaces.
(2) reducing flight control input forces.
(3) delaying airstream separation from control surfaces.
(4) increasing efectivness of control surfaces.

A-0093. Which of the following is used to counteract flutter?

(1) Static balance.
(2) Wing fence.
(3) Aerodynamic balance.
(4) Trim tab.

A-0094. The purpose of the rudder on an airplane or a glider is to

(1) control the yaw.
(2) control the overbanking tendency
(3) maintain the crab angle to control drift.
(4) maintain the turn after the aircraft is banked.

A-0095. Off-setting the fin compensates for

(1) propeller slipstream.
(2) propeller torque.
(3) aileron drag.
(4) propeller asymmetric thrust.

A-0096. What is the purpose of the rudder on an airplane?

(1) To control overbanking tendency.
(2) To control yaw.
(3) To control roll.

A-0097. An airplane or glider is being controlled around the lateral axis by

(1) ailerons.
(2) rudder.
(3) trimmer.
(4) elevator.

A-0098. What determines the longitudinal stability of an airplane?

(1) The location of the CG with respect to the center of lift.
(2) The effectiveness of the horizontal stabilizer, rudder, and rudder trim tab.
(3) The relationship of thrust and lift to weight and drag.

A-0099. What causes an airplane (except a T-tail) to pitch nosedown when power is reduced and controls are not adjusted?

(1) The downwash on the elevators from the propeller slipstream is reduced and elevator effectiveness is reduced.
(2) The CG shifts forward when thrust and drag are reduced.
(3) When thrust is reduced to less than weight, lift is also reduced and the wings can no longer support the weight.

A-0100. How do you recognize that so called "Frize-type" ailerons are installed on your aircraft?

(1) The ailerons are larger than usual.
(2) The ailerons are smaller than usual.
(3) Aileron deflections are not equal.
(4) By the aileron deflected up, the forward part of that aileron protrudes out of the lower surface of a wing.

A-0101. The purpose of the differential ailerons on an aircraft is

(1) to improve performance at low airspeeds.
(2) to improve bank controllability at low airspeeds.
(3) to reduce bank control forces.
(4) to increase stability around vertical axis.

A-0102. Bending metal stripes on the trailing edge of ailerons, often seen on some aircraft, serves for

(1) aileron balancing.
(2) trimming around the longitudinal axis.
(3) trimming around the lateral axis.
(4) prolongation of laminar streaming around the airfoil.

A-0103. The control surface(s) for controlling movements around the longitudinal axis of an aircraft is(are) called

(1) ailerons.
(2) rudder.
(3) bank trimmer.
(4) elevator.

**A-0104.** In which direction deflect the ailerons of an aircraft, if a pilot moves the control wheel or stick to the left?

(1) Left aileron down, right aileron up.
(2) Both ailerons up but left aileron deflects more than right aileron does.
(3) Both ailerons down but left aileron deflects less than right aileron does.
(4) Left aileron up, right aileron down.

**A-0105.** Differential ailerons are

(1) mass balanced ailerons to decrease forces on the control stick.
(2) aerodinamically balanced ailerons to decrease forces on the control stick.
(3) ailerons which deflect up more than deflect down.
(4) ailerons which deflect down more than deflect up.

**A-0106.** When the trim tab on the elevator is deflected downward, the position of the trim lever in the cockpit is:

(1) neutral.
(2) forward.
(3) rearward.

**A-0107.** In which position or near which label is the elevator trim lever in the cockpit, if the trim tab on the elevator is deflected upward?

(1) In neutral.
(2) Near the label "Nose Heavy".
(3) Near the label "Tail Heavy".

**A-0108.** Where does the elevator trim tab surface move, if the pilot pulls on the joke backward?

(1) Upward.
(2) Downward, but only if an aircraft moves.
(3) Nowhere.
(4) Downward.

**A-0109.** By adjusting the elevator trimmer in flight a pilot

(1) moves the aircraft's center of gravity.
(2) alters lift hence it is always equal to the aircraft's weight.
(3) eliminates the force, required to hold the control stick in a given position.
(4) equalizes deflections of both halves of the elevator.

**A-0110.** The effect of an elevator trimmer:

(1) the surface of the trim tab creates an aerodynamic force, which pushes the elevator's surface into desired direction.
(2) by manipulating the trimmer we are displacing the elevator's mass compensator.
(3) by manipulating the trimmer we alter the effectivness of the elevator.
(4) moving the trimmer lever forward causes the air stream to start separate from the trailing edge of the elevator.

**A-0111.** One of the main functions of flaps during approach and landing is to

(1) permit a touchdown at a higher indicated airspeed.
(2) increase the angle of descent without increasing the airspeed.
(3) decrease the angle of descent without increasing the airspeed.

**A-0112.** Light airplanes are equipped with flaps to

(1) increase the rate of descent without increasing descent speed.
(2) reduce stalling speed and improve forward visibility.
(3) shorten landing distance.
(4) all of the above.

**A-0113.** What is the effects of slotted flaps on the aircraft's flight characteristic?

(1) Increased stability around the longitudinal axis.
(2) Increased directional stability.
(3) Increased maximum gliding distance.
(4) Improved flight characteristic at slow flight, because of a delayed separation of the air stream from the wing surface.

## FLIGHT PERFORMANCE AND PLANNING (P)

**P-0001.** Determine if the aircraft mass is inside the limits (normal category)!

| item | mass (lb) | moment/1000 (lbxin) |
|---|---|---|
| Empty mass | 1,350 | 51.5 |
| Pilot and front passenger | 360 | …… |
| Rear passengers | 280 | …… |
| Fuel 30 US gal. | …….. | …… |
| Oil, 8 qt | …….. | -0.2 |

(see Figure 5)

(1) Forward of the forward limit.
(2) Inside limits, close to the forward limit.
(3) Inside limits.
(4) Aft of the aft limit.

**P-0002.** What is the maximum amount of fuel that may be aboard the airplane on takeoff if loaded as follows?

| item | mass (lb) | moment/1000 (lbxin) |
|---|---|---|
| Empty mass | 1,350 | 51.5 |
| Pilot and front passenger | 340 | …… |
| Rear passengers | 310 | …… |
| Baggage | 45 | ..... |
| Oil, 8 qt | …….. | -0.2 |

(see Figure 5)

(1) 24 USA gal.
(2) 34 USA gal.
(3) 40 USA gal.
(4) 46 USA gal.

**P-0003.** It is possible in some aircraft that full fuel tanks and a full passenger and baggage load would exceed the maximum mass limits. An appropriate solution would be to

(1) operate over the maximum mass limit.
(2) reduce the fuel on board, even though it will be insufficient for the flight plus reserves.
(3) reduce the fuel on board, but not less than that required for the flight plus reserves, and then, if necessary, off-load baggage and/or passengers.
(4) off-load baggage and/or passengers, so that a full fuel load can be carried.

**P-0004.** GIVEN:

| item | mass (lb) | arm(in) | moment (lbxin) |
|---|---|---|---|
| Empty mass | 1,495.0 | 101.4 | 151,593.0 |
| Pilot and passenger | 380.0 | 64.0 | …… |
| Fuel 30 US gal | …….. | 96.0 | …… |

The CG is located how far aft of datum?

(1) 92.44 in.
(2) 94.01 in.
(3) 119.80 in.
(4) 135.00 in.

**P-0005.** Determine the moment with the following data:

| item | mass (lb) | moment/1000 (lbxin) |
|---|---|---|
| Empty mass | 1,350 | 51.5 |
| Pilot and front passenger | 340 | …… |
| Fuel (full std. tanks) | …….. | …… |
| Oil, 8 qt | …….. | -0.2 |

(see Figure 5)

(1) 38.7 lbxin.
(2) 69.9 lbxin.
(3) 74.9 lbxin.
(4) 77.0 lbxin.

**P-0006.** What is the maximum amount of baggage that may be loaded aboard the normal category airplane for CG to remain inside proper limits?

| item | mass (lb) | moment/1000 (lbxin) |
|---|---|---|
| Empty mass | 1,350 | 51.5 |
| Pilot and front passenger | 250 | …… |
| Rear passengers | 400 | …… |
| Fuel 30 US gal. | …….. | …… |
| Baggage | ..... | ..... |
| Oil, 8 qt | …….. | -0.2 |

(see Figure 5)

(1) 120 lbs.
(2) 105 lbs.
(3) 90 lbs.
(4) 75 lbs.

**P-0007.** Calculate the moment of the airplane and determine which category is applicable.

| item | mass (lb) | moment/1000 (lbxin) |
|---|---|---|
| Empty mass | 1,350 | 51.5 |
| Pilot and front passenger | 310 | …… |
| Rear passenger | 96 | …… |
| Fuel 38 US gal. | …….. | …… |
| Oil, 8 qt | …….. | -0.2 |

(see Figure 5)

(1) 79.2; utility category.
(2) 80.8; utility category.
(3) 81.2; normal category.
(4) 82.0; normal category.

**P-0008.** The easiest way to determine the pressure altitude is setting an altimeter to

(1) the airport elevation and reading the altitude.
(2) the airport elevation and reading the value in the barometric window.
(3) zero and reading the value in the barometric window.
(4) 1013.2 hPa and reading the altitude.

**P-0009.** Basic reason for calculating the density altitude is determining

(1) the pressure altitude.
(2) the aircraft performance.
(3) the flight levels above the transition altitude.
(4) the safe altitude over mountainous terrain.

**P-0010.** What is pressure altitude?

(1) The indicated altitude corrected for position and installation error.
(2) The indicated altitude corrected for nonstandard temperature and pressure.
(3) The altitude indicated when the barometric pressure scale is set to 1013.2 hPa.

**P-0011.** Under which condition will pressure altitude be equal to true altitude?

(1) When the atmospheric pressure is 1013.2 hPa.
(2) When standard atmospheric conditions exist.
(3) When indicated altitude is equal to the pressure altitude.

**P-0012.** Which of the factors below increases the density altitude of an airport?

(1) Increase of atmospheric pressure.
(2) Increase of temperature.
(3) Decrease of relative humidity of the air.
(4) Decrease of temperature.

**P-0013.** Under what condition is indicated altitude the same as true altitude?

(1) If the altimeter has no mechanical error.
(2) When at sea level under standard conditions.
(3) With the altimeter set at 1013.2 hPa.

**P-0014.** What is the standard (ISA) temperature value at pressure altitude 15,000 ft?

(1) -15°C.
(2) -20°C.
(3) -25°C.

**P-0015.** If the outside air temperature (OAT) at a given altitude is lower than standard, the density altitude is

(1) lower than pressure altitude and approximately equal to true altitude.
(2) higher than true altitude and lower than pressure altitude.
(3) higher than pressure altitude.
(4) lower than true altitude.

**P-0016.** What is the standard (ISA) temperature value at pressure altitude 10,000 ft?

(1) -5°C.
(2) -10°C.
(3) -15°C.

**P-0017.** What is density altitude?

(1) The pressure altitude corrected for nonstandard temperature.
(2) The height above the standard datum plane.
(3) The altitude read directly from the altimeter.

**P-0018.** Determine approximately density altitude of an airport, where the temperature is standard and an altimeter set to 1011hPa, reads 1,300 ft.

(1) 1,240 ft.
(2) 1,300 ft.
(3) 1,360 ft.
(4) 1,400 ft.

**P-0019.** What is increase in density altitude if a temperature increases from 0 to 10°C and if the pressure altitude of an airport remains 3,000 ft?

(1) 3,000 ft.
(2) 2,200 ft.
(3) 2,000 ft.
(4) 1,200 ft.

**P-0020.** Determine the pressure altitude with an indicated altitude 1,380 ft with an altimeter setting of 1013.2 hPa at standard temperature.

(1) 1,280 ft.
(2) 1,380 ft.
(3) 1,480 ft.
(4) 1,580 ft.

**P-0021.** What is the effect of a temperature increase of 12°C on the density altitude?

(1) 1,650-foot decrease.
(2) 1,440-foot increase.
(3) 1,340-foot decrease.
(4) 1,650-foot increase.

**P-0022.** Determine the density altitude of an airport for these conditions:

QNH ..... 1025 hPa
temperature ..... -4°C
elevation ..... 3,850 ft

(1) 2,900 ft.
(2) 3,500 ft.
(3) 3,800 ft.
(4) 2,050 ft.

**P-0023.** What is the approximate pressure altitude if an altimeter is set to 1010 hPa and indicates 1,380 ft?

(1) 1,200 ft.
(2) 1,300 ft.
(3) 1,400 ft.
(4) 1,470 ft.

**P-0024.** Determine the density altitude of an airport for these conditions:

QNH ..... 1010 hPa
temperature ..... 27°C
elevation ..... 5,250 ft

(1) 4,600 ft.
(2) 5,875 ft.
(3) 7,890 ft.
(4) 8,800 ft.

**P-0025.** The density altitude could be approximately calculated from the pressure altitude without using a navigation calculator by

(1) increasing/decreasing the altitude above the sea level for the difference between the standard and actual atmospheric pressure, converted into an altitude.
(2) increasing the pressure altitude by 4% for each 10°C deviation from the standard temperature.
(3) increasing/decreasing the pressure altitude by 120 ft for each °C deviation above/below the standard temperature.

**P-0026.** Which of the statements below, concerning take-off performance of a powered aircraft regarding the density altitude is correct? At higher density altitudes

(1) aircraft accelerate better, because of reduced drag due to thinner air.
(2) aircraft accelerate poorer, because of reduced engine and propeller efficiency.
(3) aircraft must fly at higher-than-normal indicated airspeed in order to produce enough lift.

**P-0027.** How does higher air humidity affect aircraft take-off performance? Take-off distances are

(1) longer due to denser air.
(2) longer due to thinner air.
(3) shorter due to denser air.

**P-0028.** Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?

(1) Low temperature, low relative humidity and low density altitude.
(2) High temperature, high relative humidity and high density altitude.
(3) High temperature, low relative humidity and low density altitude.
(4) Low temperature, high relative humidity and high density altitude.

**P-0029.** What influence does the increased mass have on powered aircraft takeoff performance?

(1) At given engine power the aircraft accelerates better, however the airspeed required for production of the lift necessary for lift-off remains unchanged.
(2) At given engine power the aircraft accelerates poorer; the airspeed required for the production of the lift necessary for leaving the ground is greater.
(3) Each aircraft at given engine power accelerate equally regardless of the mass, however the airspeed required for overcoming the ground effect is greater.

**P-0030.** What effect does an uphill runway slope have on takeoff performance?

(1) Increases takeoff speed.
(2) Increases takeoff distance.
(3) Decreases takeoff distance.

**P-0031.** What effect does high density altitude have on aircraft performance?

(1) It increases engine performance.
(2) It reduces climb performance.
(3) It increases takeoff performance.

**P-0032.** The airplane's or powered hang glider's best angle-of-climb speed ($V_X$) is used

(1) when clearing an obstacle.
(2) when clearing a moving obstacle.
(3) when trying to climb without sacrificing cruising speed.
(4) when trying to get cruising altitude quickly.

**P-0033.** Which speed would provide the greatest gain in altitude in the shortest distance during climb after takeoff?

(1) $V_Y$.
(2) $V_A$.
(3) $V_X$.

**P-0034.** The aircraft's rate-of-climb during a steady climb depends on

(1) excess of power.
(2) excess of thrust.
(3) thrust available.

**P-0035.** After takeoff, which airspeed would the pilot use to gain the most altitude in a given period of time?

(1) $V_Y$.
(2) $V_X$.
(3) $V_A$.

**P-0036.** What is the proper use for the best-rate-of-climb speed (Vy)?

(1) when clearing an obstacle.
(2) when approaching high mountains.
(3) when trying to avoid an excessive pitch attitude during a climb.
(4) when trying to get cruising altitude quickly.

**P-0037.** What is the influence of the wind on an aeroplane's rate of climb?

(1) No effect.
(2) A headwind will increase the rate of climb.
(3) A tailwind will decrease the rate of climb.
(4) A tailwind will increase the rate of climb.

**P-0038.** What influence does the wind have on an airplane's or powered hang glider's angle-of-climb?

(1) No effect.
(2) A headwind will steepen the angle-of-climb.
(3) A headwind will lessen the angle-of-climb.
(4) A tailwind will steepen the angle-of-climb.

**P-0039.** The aircraft's climb angle during a steady climb depends on

(1) excess of thrust.
(2) power available.
(3) thrust required.

**P-0040.** At takeoff from a short airfield with an airplane or a powered hang glider, which airspeed should you fly until cleared of obstacles?

(1) Best climb speed ($V_Y$).
(2) Minimum speed ($V_S$).
(3) Maneuvering speed ($V_A$).
(4) Best angle-of-climb speed ($V_X$).

**P-0041.** During landing on an airport with high elevation the true air speed (TAS) of an aircraft is higher than normal. What indicated speed (IAS) should be kept in such cases?

(1) Lower than normal.
(2) Higher than normal.
(3) Normal speed.
(4) Increased for 5 kts for each 1,000 ft of airport elevation.

**P-0042.** Should you use the normal approach speed when approaching to land in gusty wind conditions?

(1) No. Use 1.2 times stall speed.
(2) Yes (go by Operator's Manual).
(3) No. Add one half the "gust factor" to the calculated approach speed.

**P-0043.** Maximum structural cruising speed is the maximum speed at which an airplane can be operated

(1) during abrupt maneuvers.
(2) at normal operations.
(3) in smooth air.

**P-0044.** Why should speeds in flight above $V_{NE}$ be avoided?

(1) Excessive induced drag will result in a structural failure.
(2) The design limit factor may be exceeded, if gusts are encountered.
(3) Control effectiveness is so impaired that the aircraft becomes uncontrollable.

**P-0045.** Which maximum range factors decreases as weight decreases?

(1) Altitude.
(2) Airspeed.
(3) Angle of attack.

**P-0046.** Which V-speed represents maneuvering speed?

(1) $V_A$.
(2) $V_{LO}$.
(3) $V_{NE}$.

**P-0047.** Maneuvering speed ($V_A$) is the highest speed at which even full abrupt deflection of the elevator will not exceed

(1) load factor 1 g.
(2) negative limit load factor.
(3) positive limit load factor.
(4) never exceed speed ($V_{NE}$).

**P-0048.** How will higher altitude affect the cruising indicated airspeed of an aircraft if a throttle remains unchanged?

(1) It will be higher.
(2) It will be lower.
(3) It will stay unchanged.

**P-0049.** What does "Best Endurance Speed" for a propeller aircraft mean?

(1) Maximum distance per unit of fuel (flying with least drag).
(2) Maximum time aloft per unit of fuel (flying with least power).
(3) Maximum distance between two stops.

**P-0050.** Determine the total distance required to land.

pressure altitude ..... 1,000 ft
temperature ..... 30°C
mass ..... 2300 lb
wind ..... head 9 kt
surface ..... tarmac

(see Figure 4)

(1) 510 ft.
(2) 550 ft.
(3) 565 ft.
(4) 585 ft.

**P-0051.** Determine the takeoff distance over a 50-foot obstacle under the following conditions:

pressure altitude ..... 0 ft
temperature ..... standard
mass ..... 1900 lb
wind ..... calm
surface ..... grass, dry

(see Figure 3)

(1) 920 ft.
(2) 950 ft.
(3) 1,030 ft.
(4) 1,180 ft.

**P-0052.** Determine the ground roll distance after landing.

pressure altitude ..... 0 ft
temperature ..... 10°C
mass ..... 2300 lb
wind ..... head 10 kt
surface ..... grass, dry

(see Figure 4)

(1) 510 ft.
(2) 765 ft.
(3) 1,110 ft.
(4) 1,850 ft.

**P-0053.** Determine the ground roll distance after landing.

pressure altitude ..... 0 ft
temperature ..... 15°C
mass ..... 2300 lb
wind ..... calm
surface ..... tarmac

(see Figure 4)

(1) 510 ft.
(2) 520 ft.
(3) 530 ft.
(4) 545 ft.

**P-0054.** Determine the ground roll distance required for takeoff!

pressure altitude ..... 2,000 ft
temperature ..... 40°C
mass ..... 2100 lb
wind ..... tail 4 kt
surface ..... tarmac

(see Figure 3)

(1) 565 ft.
(2) 850 ft.
(3) 935 ft.
(4) 1,120 ft.

**P-0055.** Determine the ground roll distance after landing.

pressure altitude ..... 3,000 ft
temperature ..... 20°C
mass ..... 2200 lb
wind ..... calm
surface ..... grass, dry

(see Figure 4)

(1) 590 ft.
(2) 660 ft.
(3) 685 ft.
(4) 855 ft.

**P-0056.** Determine the total distance over a 50-foot obstacle required to land.

pressure altitude ..... 1,000 ft
temperature ..... 10°C
mass ..... 2300 lb
wind ..... tail 10 kt
surface ..... tarmac

(see Figure 4)

(1) 1,265 ft.
(2) 1,360 ft.
(3) 1,850 ft.
(4) 1,900 ft.

**P-0057.** Determine the takeoff distance over a 50-foot obstacle under the following conditions:

pressure altitude ..... 4,000 ft
temperature ..... 15°C
mass ..... 2300 lb
wind ..... calm
surface ..... asphalt

(see Figure 3)

(1) 1,125 ft.
(2) 1,210 ft.
(3) 1,970 ft.
(4) 2,100 ft.

**P-0058.** Determine the total distance over a 50-foot obstacle required to land.

pressure altitude ..... 1,500 ft
temperature ..... 30°C
mass ..... 2300 lb
wind ..... calm
surface ..... tarmac

(see Figure 4)

(1) 1,385 ft.
(2) 1,350 ft.
(3) 1,320 ft.
(4) 1,280 ft.

**P-0059.** Determine the total distance over a 50-foot obstacle required to land.

pressure altitude ..... 0 ft
temperature ..... 0°C
mass ..... 2300 lb
wind ..... head 18 kt
surface ..... grass, dry

(see Figure 4)

(1) 965 ft.
(2) 1,140 ft.
(3) 1,205 ft.
(4) 1,445 ft.

**P-0060.** Determine the takeoff distance over a 50-foot obstacle under the following conditions:

pressure altitude ..... 2,000 ft
temperature ..... 30°C
mass ..... 2100 lb
wind ..... head 18 kt
surface ..... grass, dry

(see Figure 3)

(1) 1,350 ft.
(2) 1,555 ft.
(3) 1,565 ft.
(4) 2,945 ft.

**P-0061.** What will be the airspeed of an airplane in level flight under the following conditions?

pressure altitude ..... 8,000 ft
temperature ..... 20°C below standard
power setting ..... 55%

(see Figure 6)

(1) 104 kts.
(2) 110 kts.
(3) 115 kts.
(4) 120 kts.

**P-0062.** What is the expected fuel consumption for a 250-nautical flight under the following conditions?

pressure altitude ..... 6,000 ft
temperature .....20°C above standard
power setting ..... 60%
wind ..... calm

(see Figure 6)

(1) 19.7 USA gal.
(2) 16.0 USA gal.
(3) 15.1 USA gal.
(4) 12.0 USA gal.

**P-0063.** What is the expected fuel consumption for a 350-nautical flight under the following conditions?

pressure altitude ..... 4,000 ft
temperature ..... 20°C below standard
power setting ..... 60%
wind ..... calm

(see Figure 6)

(1) 14.9 USA gal.
(2) 15.3 USA gal.
(3) 18.6 USA gal.
(4) 22.7 USA gal.

**P-0064.** Approximately what engine RPM should be set during cruising at the pressure altitude 2,000 ft and with standard temperature in order to develop 60% of power?

(see Figure 6)

(1) 2500 RPM.
(2) 2400 RPM.
(3) 2300 RPM.
(4) 2200 RPM.

**P-0065.** What is the expected fuel consumption under the following conditions?

pressure altitude ..... 8,000 ft
temperature ..... 20°C below standard
power setting ..... 55%

(see Figure 6)

(1) 5.7 USA gal/h.
(2) 6.2 USA gal/h.
(3) 5.8 USA gal/h.
(4) 6.8 USA gal/h.

**P-0066.** Which forward speed is normally maintained, following an engine failure in flight in a light airplane or in a powered hang glider?

(1) Best endurance speed.
(2) Best glide speed.
(3) Minimum rate of descend speed.
(4) Minimum speed.

**P-0067.** The forward speed for minimum rate of descent of an aircraft, compared with its best glide speed, is

(1) always higher.
(2) often higher.
(3) always lower.
(4) often lower.

**P-0068.** What should be done first, following an aircraft's engine failure in flight?

(1) Carburetor heat must be applied.
(2) Move the mixture lever to position FULL RICH.
(3) Select a suitable field for forced landing.
(4) Select the gliding attitude with best glide speed.

**P-0069.** An aircraft without an engine will fly the longest distance from a given altitude at the angle of attack at which

(1) is parasite drag the least.
(2) are induced drag and parasite drag equal.
(3) is parasite drag equal to lift coefficient.

**P-0070.** Frost on the wings of an airplane may

(1) cause the airplane to become airborne with a lower angle of attack and at a lower indicated airspeed.
(2) make it difficult or impossible to become airborne.
(3) present no problem since frost will blow off when the aircraft starts moving during takeoff.
(4) change the camber (curvature of the wing) thereby increasing lift during takeoff.

**P-0071.** What is the main danger arising out of even a slight amount of frost or snow on the wings and controls of an aircraft?

(1) Decrease lift due to irregular airflow over the wings.
(2) Increased weight due to ice will increase stall speed.
(3) Ice and snow will jam control surfaces.

**P-0072.** What is the headwind component for a landing on Runway 18 if the tower reports the wind as 220°/30 kts?

(see Figure 12)

(1) 19 kts.
(2) 23 kts.
(3) 30 kts.
(4) 34 kts.

**P-0073.** What is the crosswind component for a landing on Runway 18 if the tower reports the wind as 220°/30 kts?

(see Figure 12)

(1) 19 kts.
(2) 23 kts.
(3) 30 kts.
(4) 34 kts.

**P-0074.** Which runway (06, 14, 24, 32) will you choose for landing, if tower reports south wind 20 kts and if maximum allowed crosswind component for your aircraft is 13 kts?

(see Figure 12)

(1) RWY 06.
(2) RWY 14.
(3) RWY 24.
(4) RWY 32.

**P-0075.** With the reported wind of 360°/20 kts you are approaching an airport. Which runway (06, 14 or 24) would you choose for landing, if your airplane had a 13-knots maximum allowed crosswind component on landing?

(see Figure 12)

(1) RWY 06.
(2) RWY 14.
(3) RWY 24.
(4) RWY 32.

**P-0076.** What are the headwind and crosswind components with the reported wind of 280°/15 kts for a runway with the magnetic direction 220°?

(see Figure 12)

(1) 15.5 kts headwind and 8 kts crosswind.
(2) 15.5 kts headwind and 15 kts crosswind.
(3) 13.5 kts headwind and 24 kts crosswind.
(4) 7.5 kts headwind and 13 kts crosswind.

**P-0077.** Determine the maximum wind velocity for a 45° crosswind if the maximum crosswind component for the airplane is 25 kts?

(see Figure 12)

(1) 18 kts.
(2) 25 kts.
(3) 29 kts.
(4) 35 kts.

**P-0078.** Determine the maximum wind velocity for a 40° crosswind if the maximum crosswind component for the airplane is 10 kts?

(see Figure 12)

(1) 20 kts.
(2) 18 kts.
(3) 15 kts.
(4) 12 kts.

**P-0079.** Determine the maximum wind velocity for a 30° crosswind if the maximum crosswind component for the airplane is 10 kts?

(see Figure 12)

(1) 13 kts.
(2) 16 kts.
(3) 18 kts.
(4) 20 kts.

**P-0080.** What are the headwind and crosswind components with the reported wind of 030°/10 kts for a runway with the magnetic direction 330°?

(see Figure 12)

(1) 5 kts headwind and 8 kts crosswind.
(2) 10 kts headwind and 8 kts crosswind.
(3) 8 kts headwind and 4 kts crosswind.
(4) 8 kts headwind and 8 kts crosswind.

**P-0081.** What are the headwind and crosswind components with the reported wind of 130°/20 kts for a runway with the magnetic direction 040°?

(see Figure 12)

(1) 15 kts headwind and 10 kts crosswind.
(2) Zero headwind component; crosswind component 20 kts.
(3) 10 kts headwind and 15 kts crosswind.
(4) 20 kts headwind; zero crosswind component.

## OPERATIONAL PROCEDURES (O)

**O-0001.** Official data regarding operating limitations and allowed mass of your aircraft could be found in

(1) Maintainance Log.
(2) Aircraft's Flight Manual.
(3) Certificate of Airworthiness and in Certificate of Registration.
(4) Official Gazette of Civil Aviation Authority.

**O-0002.** What frequency should be monitored by an aircraft when taking-off from an airfield inside the territory of the Republic of Slovenija without published frequency?

(1) 123.2 MHz.
(2) 123.5 MHz.
(3) 122.8 MHz.
(4) 121.5 MHz.

**O-0003.** The pilot of an aircraft taking-off from an airfield where the altimeter setting is not readily available, shall set the aircraft altimeter to

(1) the elevation of the airfield.
(2) the altitude zero.
(3) 1013.2 hPa.
(4) the altimeter setting of the nearest controlled airport.

**O-0004.** What unit of measurement is in use in aviation when vertical velocity parameters are reported?

(1) Meters per minute.
(2) Feet per minute.
(3) Meters per second.
(4) Feet per second.parameter

**O-0005.** What units of measurement are in use in aviation when wind parameters are reported to the pilot (with the exception of takeoff and landing)?

(1) True direction and kilometers per hour.
(2) Magnetic direction and statute miles per hour.
(3) True direction and knots.
(4) Magnetic direction and knots.

O-0006. During an walkaround check you move the control column of your aircraft to one side and notice that the up-aileron deflects more than the down-aileron. You would normally

(1) call the mechanic.
(2) consider situation normal as long as the difference in deflections on opposite sides is equal, however you would make a technical remark in the book.
(3) do nothing, because the ailerons are of the type "differential".
(4) fix uneven deflections by adjusting the regulating screws on the aileron control system.

O-0007. When tying down an aircraft, when should some slack be left in the rope?

(1) When using manila ropes tie-down.
(2) When using nylon ropes tie-down.
(3) Where there are strong winds.
(4) Tie-downs should be tied firmly, never leave slack.

O-0008. What should be done if your aircraft engine overheats while taxiing?

(1) turn into wind and idle at the recommended RPM.
(2) shut off the engine immediately.
(3) speed up the engine for improved airflow over the cooling fins.
(4) enrich mixture to provide cooler combustion temperatures.

O-0009. What is the proper pilot procedure in case of a popped-out circuit breaker?

(1) Push the circuit breaker and hold it firmly in by finger until land.
(2) Not to push in the circuit breaker in any case.
(3) Push the circuit breaker in with the related electrical equipment switched off.
(4) Wait until the circuit breaker cools and push it in; if it popes up again, do not push it again.

O-0010. If an engine failure is accompanied by mechanical noise and the propeller stops rotating, the cause of the engine failure is most likely

(1) fuel starvation.
(2) failure of a magneto.
(3) break-up of a piston valve.

O-0011. Following a sudden and complete loss of power from the engine, there is no mechanical noise and the propeller continues to windmill. The likely cause of the power loss is

(1) fuel starvation.
(2) failure of a magneto.
(3) break-up of a piston or valve.

**O-0012.** What should you do if your cylinder head temperature drops too low during an approach to land or in a glide?

(1) Turn on carburetor heating.
(2) Reduce airspeed to decrease the cooling effect of the airflow.
(3) Apply sufficient power to keep the engine warm.
(4) Lean the mixture.

**O-0013.** What is the reason for shutting down an aviation reciprocating engine using the mixture lever rather than the ignition switch?

(1) Because an engine cannot be shut down by switching the magnetos off.
(2) By doing that we prevent the engine to be shut down at too high temperature.
(3) Because at magnetos switching off the engine stops very rapidly and damage of the main shaft bearings could occur.
(4) By doing that we avoid self-ignition due to presence of the fuel/air mixture in cylinders.

**O-0014.** What initial precaution should be taken by the pilot when parking an aircraft with a magneto that is unable to be grounded because of a faulty connection in the ignition switch?

(1) Other pilots should be warned against flying the aircraft.
(2) The aircraft should be grounded by making an entry in the Journey Log.
(3) A placard should be placed on the aircraft warning others of "live magnetos".
(4) The CCA should be notified at once.

**O-0015.** What is the most reliable practical method of checking the fuel level in the reservoirs of an aircraft while on ground?

(1) Reading the fuel gauges with engine running.
(2) Weighing of an aircraft.
(3) Visual checking the fuel level in the reservoir.
(4) Shaking the wingtip and observing the fuel bouncing.

**O-0016.** Why should you check a sample of fuel from the sump and filter before each flight?

(1) To be certain that the fuel is free flowing.
(2) To know that the fuel pump is working properly.
(3) To be sure that the proper grade of fuel is used.
(4) To be certain that the fuel is free of contaminants and of the proper grade.

**O-0017.** Which fuel contaminant is the most difficult to isolate with simple filter systems?

(1) Water.
(2) Fine rust or dirt particles.
(3) Grease or oil.
(4) Ice.

**O-0018.** To properly purge water from the fuel system of an aircraft equipped with fuel tank sumps and a fuel strainer quick drain, it is necessary to drain fuel from the

(1) fuel strainer drain.
(2) lowest point in the fuel system.
(3) fuel strainer drain and the fuel tank sumps.

**O-0019.** What is the best way to reduce the possibility of water contamination in fuel tanks?

(1) Fuel filters should be sealed to keep out rainwater.
(2) Always keeping the fuel tanks full will help to eliminate condensation.
(3) Tank vents should be plugged while the aircraft is parked overnight.

**O-0020.** Filling the fuel tanks after the last flight of the day is considered a good operating procedure because this will

(1) prevent moisture condensation by eliminating airspace in the tanks.
(2) force any existing water to the top of the tank away from the fuel lines to the engine.
(3) prevent expansion of the fuel by eliminating airspace in the tanks.

**O-0021.** What happens if the filler cap comes loose on one of your wing fuel tanks?

(1) Rainwater will enter the tank and contaminate the fuel.
(2) The low pressure on the top of the wing will cause all the fuel to be siphoned out.
(3) The loose cap will cause damage to control surfaces if it flies off.
(4) The aerodynamics flow about the fuel filler neck will disrupt fuel flow.

**O-0022.** What will happen if the fuel primer pump is not locked enough after its use?

(1) The fuel/air mixture will be too rich because of the fuel leaking into the intake manifold.
(2) The fuel/air mixture will be too poor because of the air leaking into the intake manifold.
(3) Dropping of a fuel in the cockpit.
(4) Detonations in the engine because of too rich fuel/air mixture.

**O-0023.** What is the reason for most of the refueling fires caused by static electricity sparks?

(1) Refueling an ungrounded aircraft from metal containers.
(2) Refueling a grounded aircraft with the engine running.
(3) Refueling an ungrounded aircraft from plastic containers.

**O-0024.** What is the specific mass of aviation gasoline?

(1) 0.60 kg/liter.
(2) 0.72 kg/liter.
(3) 1.00 kg/liter.
(4) 1.72 kg/liter.

**O-0025.** 1 USA gallon of AVGAS 100 LL weights

(1) 3 lbs.
(2) 4 lbs.
(3) 5 lbs.
(4) 6 lbs.

**O-0026.** 53 liters of AVGAS 100 LL weights

(1) 38 kg.
(2) 42 kg.
(3) 74 kg.
(4) 80 kg.

**O-0027.** What color is 80/87 grade aviation fuel?

(1) Red.
(2) Green.
(3) Blue.
(4) Violet.

**O-0028.** What is the color of 100/130 grade aviation fuel?

(1) Red.
(2) Green.
(3) Blue.
(4) Violet.

**O-0029.** Aviation gasoline 100LL is colored

(1) red
(2) green.
(3) violet.
(4) blue.

**O-0030.** What fuel should you use in your aircraft if the specified grade is not available?

(1) The next higher grade of aviation fuel.
(2) The next lower grade of aviation fuel.
(3) Unleaded avtomotive gas of the same grade.
(4) Automotive gas SUPER of the same or next higher grade.

**O-0031.** If the grade of fuel used in an aircraft engine is lower than specified for the engine, it will most likely cause

(1) a mixture of fuel and air that is not uniform in all cylinders.
(2) lower cylinder head temperatures.
(3) detonation.

O-0032. Which would most likely cause the cylinder head temperature and engine oil temperature gauges to exceed their normal operating ranges?

(1) Using fuel that has a higher-than-specified fuel rating.
(2) Using fuel that has a lower-than-specified fuel rating.
(3) Operating with higher-than-normal oil pressure.

O-0033. Detonation may occur at high-power settings when

(1) the fuel mixture ignites instantaneously instead of burning progressively and evenly.
(2) an excessively rich fuel mixture causes an explosive gain in power.
(3) the fuel mixture is ignited too early by hot carbon deposits in the cylinder.

O-0034. If the grade of fuel used in an aircraft engine is lower than specified for the engine, it will most likely cause

(1) a mixture of fuel and air that is not uniform in all cylinders.
(2) lower cylinder head temperatures.
(3) an increase in power which could overstress internal engine components.
(4) detonations.

O-0035. What would be the most likely cause of back-firing or mis-firing during run-up?

(1) Rich mixture.
(2) Lean mixture.

O-0036. On aircraft equipped with fuel pumps, when is the auxiliary electric driven pump used?

(1) In the event engine-driven fuel pump fails.
(2) All the time to aid the engine-driven fuel pump.
(3) Constantly except in starting the engine.

O-0037. What should be the first action after starting an aircraft engine?

(1) Adjust for proper RPM and check for desired indications on the engine gauges.
(2) Place the magneto or ignition switch momentarily in the OFF position to check for proper grounding.
(3) Test each brake and the parking brake.

O-0038. When an engine is started up, the pilot should monitor oil pressure. If the engine is cold prior to start up, it should be

(1) shut down immediately if oil pressure does not rise immediately upon start up.
(2) shut down, if oil pressure is not seen to rise within approximately 30 seconds of start up.
(3) shut down, if oil pressure has not reached normal limits by the time the airplane is ready for takeoff.
(4) operated normally, since it may take 10 minutes for oil pressure to rise.

O-0039. What should normally be done if after start-up of a hot four-stroke aviation engine oil pressure does not reach proper level?

(1) Increase engine RPM thus allowing the oil pump to increase oil pressure.
(2) Shut down the engine.
(3) Nothing, because instruments on modern aircraft are cheap and unreliable.
(4) Enrich the mixture to prevent unnormal rise of the cylinder heads temperature.

O-0040. The most probable reason for propeller back-rotating during starting of an reciprocating aviation engine is

(1) insufficient priming of fuel.
(2) too poor mixture.
(3) too rich mixture.
(4) excessive priming of fuel.

O-0041. The most probable reason an engine continues to run after the ignition switch has been turned off is

(1) carbon deposits glowing on the spark plugs.
(2) a magneto ground wire is in contact with the engine casing.
(3) a broken magneto ground wire.

O-0042. When and where should the pilot check the aircraft wheel brakes?

(1) Immediately after leaving the parking spot.
(2) Any time during taxiing towards a runway.
(3) On the runway, after the aircraft gains some speed.
(4) After takeoff.

O-0043. A reading 5 inHg on the vacuum gauge of an aircraft is the indication of

(1) insufficient suction.
(2) normal suction.
(3) excessive suction.

O-0044. A reading 2 inHg on the vacuum gauge of an aircraft is the indication of

(1) insufficient suction.
(2) normal suction.
(3) excessive suction.

O-0045. When should the pressure in the barometric subscale of an aircraft altimeter be set?

(1) Yearly.
(2) Monthly.
(3) Before each flight and in the air, if necessary.
(4) Each morning before flying.

O-0046. The accuracy of an altimeter is checked by

(1) low-passing near towers with known height.
(2) cross-checking of altimeter readings and radioaltimeter readings.
(3) setting the altimeter to QNH in checking the elevation reading while on ground.
(4) cross-checking of flight altitudes and altitudes from an aeronautical geographical chart 1:500 000.

O-0047. How frequently should the aviation magnetic compass be swung?

(1) Before first initial inspection of an aircraft.
(2) Each year before an annual inspection of an aircraft or after installing of optional instruments or radio equipment, or more frequently, if necessary.
(3) Each month.
(4) After each long flight.

O-0048. The pilot could normally check the state of charge of the oleo-pneumatic units during a walkaround inspection by

(1) measuring the pressure in the oleo-pneumatic units.
(2) inspecting the hydraulic fluid level in the oleo-pneumatic units.
(3) inspecting how much the struts extend.
(4) This check could not be performed by the pilot.

O-0049. The red creep marks on the main tyre and the wheel of an aircraft serve for

(1) tyre type recognizing.
(2) wheel balancing.
(3) tyre pressure checking.
(4) tyre-wheel alignment checking.

O-0050. If a tyre has moved so that the creep marks are out of alignment, then

(1) it is serviceable.
(2) it should be inspected and possibly re-fitted or replaced.
(3) tyre pressure should be checked.
(4) the brakes will be unserviceable.

O-0051. Braking of an individual main wheel is known as

(1) individual braking.
(2) directional braking.
(3) differential braking.

O-0052. Where should the elevator be positioned when taxiing a nose-wheel aircraft in a strong wind blowing from behind?

(1) positioned to create a substantial down-force on the main landing gear as recommended by a manufacturer.
(2) forward control.
(3) aft control.
(4) neutral.

O-0053. Which wind condition would be most critical when taxiing a nosewheel equipped high-wing airplane?

(1) Quartering tailwind.
(2) Direct crosswind.
(3) Quartering headwind.

O-0054. How should the elevator be deflected while taxiing a tailwheel aeroplane with a strong tailwind?

(1) Down.
(2) Up.
(3) In neutral.
(4) Fully up.

O-0055. What would be most likely to cause an upset while taxiing a nose-wheel equipped aircraft in strong wind?

(1) Applying the brakes suddenly & firmly.
(2) Accelerating suddenly.
(3) Turning sharply (causing the wind to lift the up-wind wing).
(4) Lifting the nose-wheel.

O-0056. How should the flight controls be held while taxiing a tricycle-gear equipped airplane into a left quartering tailwind?

(1) Left aileron up, elevator neutral.
(2) Left aileron down, elevator down.
(3) Left aileron up, elevator down.

O-0057. When taxiing with strong quartering tailwind, which aileron position should be held?

(1) Aileron down on the downwind side.
(2) Ailerons neutral.
(3) Aileron down on the side from which the wind is blowing.

O-0058. How should the flight controls be held while taxiing a tailwheel airplane with a left quartering tailwind?

(1) Left aileron up, elevator neutral.
(2) Left aileron down, elevator neutral.
(3) Left aileron down, elevator down.

O-0059. Which aileron position should a pilot generally use when taxiing in strong quartering headwinds?

(1) Aileron up on the side from which the wind is blowing.
(2) Aileron down on the side from which the wind is blowing.
(3) Aileron neutral.

O-0060. How should the flight controls be held while taxiing a tricycle-gear equipped airplane into a left quartering headwind?

(1) Left aileron up, elevator neutral.
(2) Left aileron down, elevator neutral.
(3) Left aileron up, elevator down.

O-0061. How should the flight controls be held while taxiing a tailwheel airplane into a right quartering headwind?

(1) Right aileron up, elevator up.
(2) Right aileron down, elevator neutral.
(3) Right aileron up, elevator down.

O-0062. If an emergency situation requires a downwind landing, pilots should expect a faster

(1) airspeed at touchdown, a longer ground roll, and better control throughout the landing roll.
(2) groundspeed at touchdown, a longer ground roll, and the likelihood of overshooting the desired touchdown point.
(3) groundspeed at touchdown, a shorter ground roll, and the likelihood of undershooting the desired touchdown point.

O-0063. To minimize the side loads placed on the landing gear during touchdown, the pilot should keep the

(1) direction of motion of the aircraft parallel to the runway.
(2) longitudinal axis of the aircraft parallel to the direction of its motion.
(3) downwind wing lowered sufficiently to eliminate the tendency for the aircraft to drift.

O-0064. During an IFR cross-country flight you picked up rime icing which you estimate is 1/2" thick on the leading edge of the wings. You are now below the clouds at 2000 feet AGL and are approaching your destination airport under VFR. Visibility under the clouds is more than 10 miles, winds at the destination airport are 8 knots right down the runway, and the surface temperature is 3 degrees Celsius. You decide to:

(1) use a faster than normal approach and landing speed.
(2) approach and land at your normal speed since the ice is not thick enough to have any noticeable effect.
(3) fly your approach slower than normal to lessen the “wind chill” effect and break up the ice.

O-0065. As an airplane climbs to higher altitudes with the mixture control set in RICH, the fuel/air mixture

(1) does not change.
(2) becomes leaner.
(3) becomes richer.

O-0066. While cruising at 9,500 feet MSL, the fuel/air mixture is properly adjusted. What will occur if a descent to 4,500 feet MSL is made without readjusting the mixture?

(1) The fuel/air mixture may become excessively lean.
(2) There will be more fuel in the cylinders than is needed for normal combustion, and the excess fuel will absorb heat and cool the engine.
(3) The excessively rich mixture will create higher cylinder head temperatures and may cause detonation.
(4) The fuel/air mixture may become excessively reach.

O-0067. To properly compensate for a crosswind during straight-and-level cruising flight, the pilot should

(1) hold rudder pressure toward the wind.
(2) establish a proper heading into the wind by coordinated use of controls.
(3) hold aileron pressure toward the wind and hold opposite rudder pressure to prevent turning.

O-0068. During the run-up at a high-elevation airport, a pilot notes a slight engine roughness that is not affected by the magneto check but grows worse during the carburetor heat check. Under these circumstances, what would be the most logical initial action?

(1) Check the results obtained with a leaner setting of the mixture.
(2) Taxi back to the flight line for a maintenance check.
(3) Reduce manifold pressure to control detonation.
(4) Check the mixture control lever is in FULL RICH position.

O-0069. Correct procedure for leaning the mixture during cruise is pulling the mixture level back towards LEAN until RPM will

(1) drop to the minimum.
(2) reach the maximum.
(3) reach the maximum; at this point return the mixture level slightly forward.

O-0070. If, during start-up a fire occurs in the engine air intake, a generally suitable procedure is to

(1) place the starter switch to OFF.
(2) continue with the normal start.
(3) keep turning the engine, but move the mixture control to IDLE CUT-OFF and open the throttle.

O-0071. What is indicated by black smoke emitted from the engine exhaust during the run-up?

(1) The choke is out too far.
(2) The piston rings are stuck or worn.
(3) The mixture is too rich.
(4) The carburetor is set too lean.

**O-0072.** What is indicated by blue smoke emitted from the engine exhaust during the run-up?

(1) The choke is out too far.
(2) The piston rings are stuck or worn.
(3) The mixture is too rich.
(4) The carburetor is set too lean.

**O-0073.** How should the mixture control be set for takeoff at sea level?

(1) Forward (FULL RICH).
(2) Aft (FULL RICH).
(3) Aft (FULL LEAN).
(4) Forward (FULL LEAN).

**O-0074.** The presence of carburetor ice in an aircraft equipped with a fixed-pitch propeller can be verified by applying carburetor heat and noting

(1) an increase in RPM and then a gradual decrease in RPM.
(2) a decrease in RPM and then a constant RPM indication.
(3) a decrease in RPM and then a gradual increase in RPM.

**O-0075.** During cruise flight you apply full carburetor heat to your aircraft with fixed-pitch propeller. What is the expected effect in RPM under normal conditions?

(1) No effect.
(2) It would cause a slight increase in RPM due to hot air intake.
(3) It would cause a slight decrease in RPM due to the change in fuel/air mixture.
(4) The RPM would fluctuate due to the unstable fuel/air mixture.

**O-0076.** During engine run-up test on ground the pilot can check the proper functioning of carburetor heating by moving the carburetor heat lever to HOT and noting

(1) a slight drop in RPM.
(2) a slight rise in RPM.
(3) increased flow of hot air into the cockpit.
(4) This check could not be performed on ground.

**O-0077.** The carburetor heat during taxi should be used with caution due to

(1) dust and other foreign particles which can cause damage if ingested into engine.
(2) high temperatures which can cause detonations.
(3) rich mixture which can cause fouling of the spark plugs.
(4) overheating of the engine.

**O-0078.** How should you select propeller pitch for takeoff if your aircraft has a constant speed propeller?

(1) Fine pitch (Low RPM) for maximum efficiency.
(2) Coarse pitch (Low RPM) for minimum noise.
(3) Fine pitch (High RPM) for maximum power.
(4) Coarse pitch (Low RPM) for maximum thrust.

O-0079. In an airplane with a controllable pitch propeller, power reduction should be made by first reducing

(1) the RPM with the throttle, and then reducing the manifold pressure with the propeller control.
(2) the RPM with the propeller control, and then reducing the manifold pressure with the throttle.
(3) the manifold pressure with the throttle, and then adjusting the RPM with the propeller control.
(4) the manifold pressure with the propeller control, and then reducing the RPM with the throttle.

O-0080. When transiting an airplane with a constant-speed propeller from a cruise to a climb, the pilot should

(1) increase the manifold pressure with the throttle first, and then increase the RPM with the propeller control.
(2) increase the PRM with the propeller control before advancing the throttle.
(3) increase the RPM with the throttle first, and then increase the manifold pressure with the propeller control.
(4) decrease the manifold pressure with the propeller control first, and then increase the RPM with the throttle.

O-0081. Shortly after an aviation engine start-up you noticed on the left-zero ammeter a high current reading despite of all electrical consumers not connected? You should normally

(1) shut down the engine immediately, because the alternator is not functioning.
(2) reset the alternator master switch and, if the condition does not recover, shut down the engine and report to the mechanic non-operating alternator.
(3) do nothing, because in such cases an alternator provides the electrical current for battery charging only, which normally deplenishes a little during an engine start-up.

O-0082. What is the meaning of the zero reading on a left-zero ammeter in flight?

(1) Normal condition.
(2) The alternator is not functioning.
(3) None of electrical consumers is switched on.
(4) Both (2) and (3) are correct.

O-0083. How could you recognize by the indication of the left-zero ammeter a non-functioning aircraft alternator? The instrument reading should be

(1) maximum.
(2) zero and stays zero even after the significant electrical consumer is switched on (e.i. the landing light).
(3) increase significantly after the electrical consumer is switched on.

O-0084. Shortly after aircraft engine start-up you notice that the pointer of a center-zero ammeter is deflected to the right with electrical consumers switched off. This indication means

(1) deplenishing accumulator, because the alternator is not functioning, therefore alternator exciting should be attempted by switching the master switch on and off. If the pointer does not return to zero, the engine should be shut down and the mechanic advised.
(2) deplenishing accumulator, therefore the engine should be shut down.
(3) charging accumulator, because during an engine start-up the accumulator normally deplenishes a little.

O-0085. What may zero reading on the center-zero ammeter in flight indicates?

(1) Normal condition; the alternator provides electrical power for electrical equipment.
(2) Alternator off-line.
(3) No electrical equipment is switched on.
(4) Abnormal condition; the battery provides electrical power for electrical equipment.

O-0086. In flight you notice that the pointer of a center-zero ammeter is deflected to the left. What does this indication mean and what should you as the pilot of an aircraft normally do?

(1) Normal condition; the accumulator is charging, therefore the flight will be continued, the indication of an instrument should be monitored and a drop of indication should be expected.
(2) Normal condition; the instruments indicate present consumption of the electricity, provided by the alternator.
(3) Not-normal condition; the accumulator deplenishes, because the alternator is not functioning or is not capable to cover all the demands of electrical consumers connected. If after switching off-on of the master switch the situation does not recover, an electrical consumption should be reduced to minimum and a landing should be made to the nearest suitable airfield.

O-0087. In flight you notice the orange light glowing on the instrumental panel. What does this mean?

(1) Too high output voltage.
(2) Flat battery.
(3) Overheated alternator.
(4) Alternator does not deliver any electrical current.

O-0088. An electrical system failure (battery and alternator) occurs during flight. In this situation, you would

(1) experience avionics equipment failure.
(2) probably experience failure of the engine ignition system, fuel gauges, aircraft lighting system, and avionics equipment.
(3) probably experience engine failure due to the loss of the engine-driven fuel pump and also experience failure of the radio equipment, lights, and all instruments that require alternating current.

O-0089. Wingtip vortices are created only when an aircraft is

(1) operating at high airspeeds.
(2) heavily loaded.
(3) developing lift.

O-0090. Can the downdraft air currents occurring as a result of wingtip vortices from a heavier aircraft exceed the climb capability of a light aircraft?

(1) Yes, particularly behind large, heavy transport aircraft.
(2) Not normally.
(3) Occasionally, particularly in the vicinity of air pockets.

**O-0091.** Choose the correct statement regarding wake turbulence.

(1) Vortex generation begins with the initiation of the takeoff roll.
(2) The primary hazard is loss of control because of induced roll.
(3) The greatest vortex strength is produced when the generating airplane is heavy, clean, and fast.

**O-0092.** What is the most likely cause of the dangerous turbulence behind heavy aircraft?

(1) Propeller blast.
(2) Jet blast.
(3) Wingtip vortices.

**O-0093.** What precautions are required when stopping a light aircraft behind a heavy aircraft that is stopped on the manoeuvring area?

(1) The light aircraft should be facing the large aircraft.
(2) The light aircraft should face away from the large aircraft.
(3) The light aircraft should should be no closer than 125 m from rear of large aircraft.
(4) The light aircraft should be stopped clear of the jet blast danger area.

**O-0094.** During a takeoff made behind a departing large jet airplane, the pilot can minimize the hazard of wingtip vortices by

(1) being airborne prior to reaching the jet's flightpath until able to turn clear of its wake.
(2) maintaining extra speed on takeoff and climbout.
(3) extending the takeoff roll and not rotating until well beyond the jet's rotation point.

**O-0095.** When landing behind a large aircraft, the pilot should avoid wake turbulence by staying

(1) above the large aircraft's final approach flightpath and landing beyond the large aircraft's touchdown point.
(2) below the large aircraft's final approach flightpath and landing before the large aircraft's touchdown point.
(3) above the large aircraft's final approach flightpath and landing before the large aircraft's touchdown point.

**O-0096.** Which procedure should you follow to avoid wake turbulence if a large jet crosses your course from left to right approximately 1 mile ahead and at your altitude?

(1) Make sure you are slightly above the path of the jet.
(2) Slow your airspeed to $V_A$ and maintain altitude and course.
(3) Make sure you are slightly below the path of the jet and perpendicular to the course.

**O-0097.** How long will wake turbulence remain after the passage of a large aircraft?

(1) Two minutes.
(2) Three minutes.
(3) Five minutes or more; ATC permits two or three minutes separation.

O-0098. When operating an aircraft at cabin pressure altitudes above 10,000 ft up to and including 13,000 ft MSL, supplemental oxygen shall be used by all crew members

(1) the entire flight time at those altitudes.
(2) that flight time in excess of 10 minutes at those altitudes.
(3) that flight time in excess of 30 minutes at those altitudes.

O-0099. When operating an aircraft at cabin pressure altitudes above 13,000 ft MSL, sufficient supplemental oxygen should be carried to supply

(1) crew members only.
(2) crew members and passengers.
(3) passengers only.

O-0100. Following separation of the airflow from one wing and banking and slipping to one side, the pilot would prevent an aircraft of developing a full spin by

(1) deflection of all flight controls to the opposite side of rotation instantly.
(2) applying back pressure on the control stick thus recovering from a dive.
(3) opening the airbrakes immediately (if installed).
(4) deflecting the rudder to the opposite side of slipping and easing the elevator forward to gain the speed.

O-0101. Choose the correct procedure for spin recovery in an aeroplane or a glider?

(1) Apply the rudder opposite to direction of rotation, ailerons to neutral, elevator control ease forward, and recover gently from a dive.
(2) Apply the rudder in direction of rotation, ailerons opposite to direction of rotation, and firmly pull on the stick backward.
(3) Simply remove your hand from the stick.
(4) Deflect the rudder and the stick in direction of rotation and firmly push on the stick forward.

O-0102. Choose the correct action for steep spiral recovery.

(1) Apply full rudder opposite to direction of rotation, move control column forward to break a stall, and ease out of ensuing dive.
(2) Apply opposite ailerons, ease control column forward, and ease out of ensuing dive.
(3) Level wings with ailerons, and ease out of ensuing dive.

O-0103. Your aircraft is pointing nose down and is making a rapid circular descent toward the ground. After reducing power to idle, and neutralizing the ailerons, what are the NEXT action a pilot should take in order to recover from a spin?

(1) Apply full rudder opposite to direction of rotation, move control column forward to brake a stall, and ease out of ensuing dive.
(2) Apply opposite ailerons, ease control column forward, and ease out of ensuing dive.
(3) Level wings with ailerons, and ease out of ensuing dive.

**O-0104.** One of the main function of flaps during the approach and landing is to

(1) decrease lift, thus enabling a steeper-than-normal approach to be made.
(2) increase the angle of descent without increasing the airspeed.
(3) permit touchdown at a higher indicated airspeed.
(4) decrease the angle of descent without increasing the airspeed.

**O-0105.** The main benefit of using flaps during approach and land is to

(1) decrease the angle of descent without increasing the airspeed.
(2) provide the same amount of lift at a slower airspeed.
(3) decrease lift, thus enabling a steeper-than-normal approach to be made.

**O-0106.** Wing flaps at the recommended takeoff setting

(1) increase lifting ability for a small penalty of drag.
(2) increase lifting ability for a large penalty of drag.
(3) significantly increase drag for a small decrease in lifting ability.
(4) will not affect lift and drag.

**O-0107.** Wing flaps at the recommended landing setting

(1) increase lifting ability for a small increase of drag.
(2) cause a large drag increase and a small increase in lifting ability.
(3) significantly increase drag for a small decrease in lifting ability.
(4) will not affect lift and drag.

**O-0108.** What effect does extended wing flaps have on the stalling speed? The stalling speed will

(1) decrease.
(2) no change, because the stalling speed does not depend on wing flaps position.
(3) increase.

**O-0109.** During landing close to the surface and at low airspeed, it could be dangerous to retract wing flaps, because of

(1) drag increase and resulting rapid decrease of the airspeed.
(2) rapid increase of the airspeed and resulting rapid climb.
(3) rapid decrease of lift and resulting sink into runway.
(4) great decrease in effectivness of wing flaps.

**O-0110.** Wing flaps at takeoff are not set to fully deflected position to avoid

(1) excessive lift.
(2) excessive drag.
(3) "nose heavy" aircraft.
(4) damage of the flaps.

**O-0111.** That portion of the runway identified by the letter A may be used for

(see Figure 18)

(1) landing.
(2) taxiing and takeoff.
(3) taxiing and landing.

**O-0112.** According to the airport diagram, which statement is true?

(see Figure 18)

(1) Runway 30 is equipped at position E with emergency arresting gear to provide means of stopping military aircraft.
(2) Takeoffs may be started at position A on Runway 12, and the landing portion of this runway begins at position B.
(3) The takeoff and landing portion of Runway 12 begins at position B.

**O-0113.** When approaching taxiway holding lines from the side with the continuous lines, the pilot

(1) may continue taxiing.
(2) should not cross the lines without ATC clearance.
(3) should continue taxiing until all parts of the aircraft have crossed the lines.

**O-0114.** What is the purpose of the runway/runway hold position sign?

(1) Denotes entrance to runway from a taxiway.
(2) Denotes area protected for an aircraft approaching or departing a runway.
(3) Denotes intersecting runways.

**O-0115.** What is the difference between area A and area B on the airport depicted?

(see Figure 18)

(1) "A" may be used for taxi and takeoff; "E" may be used only as an overrun.
(2) "A" may be used for all operations except heavy aircraft landing; "E" may be used for only as an overrun.
(3) "A" may be used only for taxiing; "E" may be used for all operations except landings.

**O-0116.** Area C on the airport depicted is classified as a

(see Figure 18)

(1) stabilized area.
(2) multiple heliport.
(3) closed runway.

**O-0117.** The arrows that appear on the end of the north/south runway indicate that the area

(see Figure 19)

(1) may be used only for taxiing.
(2) is usable for taxiing, takeoff, and landing.
(3) cannot be used for landing, but may be used for taxiing and takeoff.

**O-0118.** The numbers 4 and 22 on a runway indicate that the runway is oriented approximately (see Figure 19)

(1) 004° and 022° (true).
(2) 040° and 220° (true).
(3) 040° and 220° (magnetic).

**O-0119.** Airport taxiway edge lights are identified at night by

(1) white directional lights.
(2) blue omnidirectional lights.
(3) alternate red and green lights.

**O-0120.** Which of the following describes threshold lights?

(1) Red unidirectional.
(2) Green omni-directional.
(3) Red omni-directional.
(4) Green unidirectional.

**O-0121.** Low intensity obstacle lights on fixed objects shall be

(1) flashing yellow.
(2) flashing red.
(3) fixed red.
(4) fixed orange.

**O-0122.** VFR approaches to land at night should be accomplished

(1) at a higher airspeed.
(2) with a steeper descent.
(3) the same as during daytime.

**O-0123.** Each pilot of an aircraft approaching to land on a runway served by a visual approach slope indicator (VASI) shall

(1) maintain a 3° glide to the runway.
(2) maintain an altitude at or above the glide slope.
(3) stay high until the runway can be reached in a power-off landing.

**O-0124.** When approaching to land on a runway served by a visual slope indicator (VASI), the pilot shall

(1) maintain an altitude that captures the glide slope at least 2 miles downwind from the runway threshold.
(2) maintain an altitude at or above the glide slope.
(3) remain on the glide slope and land between the two-light bars.

**O-0125.** A slightly high-glide-slope indication from a precision approach path indicator is

(1) four white lights.
(2) three white lights and one red light.
(3) two white lights and two red lights.

**O-0126.** A below-glide-slope indication from a tri-color VASI is

(1) red light signal.
(2) pink light signal.
(3) green light signal.

**O-0127.** An above-glide-slope indication from a tri-color VASI is

(1) a white light signal.
(2) a green light signal.
(3) an amber light signal.

**O-0128.** An on-glide-slope indication from a tri-color VASI is

(1) a white light signal.
(2) a green light signal.
(3) an amber light signal.

**O-0129.** A below-glide-slope indication from a pulsating approach slope indicator is a

(1) pulsating white light.
(2) steady white light.
(3) pulsating red light.

**O-0130.** Illustration A indicates that the aircraft is

(see Figure 20)

(1) below the glide slope.
(2) on the glide slope.
(3) above the glide slope

**O-0131.** VASI lights as shown by illustration C indicate that the airplane is

(see Figure 20)

(1) off course to the left.
(2) above the glide slope.
(3) below the glide slope.

**O-0132.** While on final approach to a runway equipped with a standard 2-bar VASI, the lights appear as shown by illustration B. This means that the aircraft is

(see Figure 20)

(1) above the glide slope.
(2) below the glide slope.
(3) on the glide slope.

**O-0133.** The elevation of the airport is

(see Figure 17)

(1) 1,649 ft.
(2) 1,486 ft.
(3) 1,449 ft.

**O-0134.** The transition altitude of the airport is

(see Figure 17)

(1) 5,000 ft.
(2) 3,700 ft.
(3) 3,500 ft.
(4) This information could normally be obtained from the tower shortly before takeoff.

**O-0135.** The highest obstacle in the vicinity of the airport is

(see Figure 17)

(1) 1,486 ft.
(2) 1,649 ft.
(3) 2,631 ft.

**O-0136.** When approaching the airport, how could the pilot normally obtain weather information and other data, needed for landing?

(see Figure 17)

(1) By questioning the tower controller via radio communication.
(2) By listening the frequency 338 KHz.
(3) By listening the frequency 123.12 MHz.

**O-0137.** What radionavigation aid is located in the middle of the airport and what is its feature?

(see Figure 17)

(1) VOR; it is being switched on by the pilot's request.
(2) TACAN; civil aircraft use it the same way as an ordinary VOR is being used.
(3) TACAN; civil aircraft receive DME information only.

**O-0138.** What is the localizer frequency and localizer course for the given landing direction?

(see Figure 17)

(1) 108.7 MHz and 263° (magnetic direction).
(2) 116.0 MHz and 263° (magnetic direction).
(3) 118.82 MHz and 325° (magnetic direction).
(4) 108.7 MHz and 325° (true direction).

**O-0139.** With what radionavigation device is collocated the outer marker (OM)?

(see Figure 17)

(1) VOR MDF.
(2) TACAN DMN.
(3) NDB MNW.

**O-0140.** What is the distance from outer marker to the runway threshold?

(see Figure 17)

(1) 4.7 NM.
(2) 3.1 NM.
(3) 3.7 NM.

**O-0141.** On the controlled airport you noticed a square yellow board bearing a black "C", exposed above one of the doors (picture C). What does that mean?

(see Figure 25)

(1) Customs office.
(2) Exit for private aircraft crew.
(3) Staff exit.
(4) Air traffic control reporting office.

**O-0142.** In the signal area of an aerodrome, a red square with a single yellow diagonal strip (Picture B) means:

(see Figure 25)

(1) do not land.
(2) take special care when landing because of the poor state of the manoeuvring area.
(3) gliders are operating.
(4) helicopters are operating.

**O-0143.** What is the meaning of the visual ground signal in a form of a horizontal red square panel with yellow diagonals displayed in an airport signal area (Picture A)?

(see Figure 25)

(1) Area unfit for movement of aircraft.
(2) Aircraft are required to land, takeoff and taxi on runways and taxiways only.
(3) Special precautions must be observed in approaching to land or in landing.
(4) Landings are prohibited.

**O-0144.** A white cross, placed horizontally on the beginning of the taxiway (picture G), means

(1) Taxiway unserviceable!
(2) Caution, you are approaching the intersection with the runway!
(3) Helicopter landing area!
(4) Caution, you are approaching the intersection with other taxiway!

**O-0145.** In the signal area of an aerodrome, a double white cross (Picture H) means:

(see Figure 25)

(1) Landing prohibited, the airport is not safe!
(2) Take special care during approach and landing!
(3) Ground taxiing permitted outside runway and taxiways!
(4) Caution, gliders in the air!

**O-0146.** In the signal area of an aerodrome, a white dumb-bell (Picture D) means:

(see Figure 25)

(1) Landing direction is parallel with the shafts towards the cross-arm.
(2) Land on hard surfaces only.
(3) Land and taxi on hard surfaces only.
(4) Do not land.

**O-0147.** In the signal area of an aerodrome, a white dumb-bell with black stripes on each circular portion at right angles to the shaft (Picture E) means:

(see Figure 25)

(1) Landing prohibited for prolonged period.
(2) Landing, takeoff, and taxiing confined to runway and taxiways only.
(3) Caution, gliders in the air.
(4) Landing, takeoff, and taxiing on runway and taxiways only, other movement on the ground is not confined to hard surfaces.

**O-0148.** What marking may be displayed by day on an aerodrome to indicate unserviceability of any portion of a manoeuvring area?

(1) Orange flags bordering the unserviceable area.
(2) White and orange cones bordering the unserviceable area.
(3) Crosses of single conspicuous color (preferably white) displayed horizontally.
(4) Large red squares with yellow diagonal markings displayed horizontally.

**O-0149.** In the signal area of an aerodrome, a sign presented by the Picture I, means:

(see Figure 25)

(1) After landing vacate the runway by right turn.
(2) Parking site to the right.
(3) Continue to the next airport, the runway is closed.
(4) Right-hand traffic circuit in force.

**O-0150.** In the signal area of an aerodrome, a white "T" (Picture F) means:

(see Figure 25)

(1) Landing direction is parallel with the shafts towards the cross-arm.
(2) Land on hard surfaces only.
(3) Land and taxi on hard surfaces only.
(4) Do not land.

**O-0151.** What is the light signal that means "CLEARED TO TAXI"?

(1) Steady green light.
(2) Steady red light.
(3) Alternating red and green light.
(4) Flashing green light.

**O-0152.** Flashing white light, directed from the tower to the aircraft on ground, means

(1) TAXI FASTER.
(2) TAXI PERMITTED ON TAXIWAYS ONLY-DO NOT CROSS RUNWAYS.
(3) RETURN TO STARTING POINT ON AIRPORT.
(4) INSTRUMENTAL CONDITIONS EXIST.

**O-0153.** What is the light signal that means "AIRPORT UNSAFE, DO NOT LAND"?

(1) Steady red light.
(2) Flashing red light.
(3) Red flare.
(4) Series of projectiles, each showing, when bursting, red and green lights.

O-0154. During final approach a red light is directed from the control tower to the aircraft, therefore the pilot should

(1) land as soon as possible and vacate the runway in use.
(2) discontinue the approach, fly another traffic circuit and approach and land.
(3) discontinue the approach, because the airport is not safe.
(4) discontinue the approach, fly right traffic circuit and expect flashing white light, which means that the airport is safe for landing.

O-0155. What light signal is used by the control tower to instruct an aircraft in flight "GIVE WAY TO ANOTHER AIRCRAFT AND CONTINUE CIRCLING"?

(1) Flashing red light.
(2) Steady red light.
(3) Alternating red and green light.
(4) Flashing green light.

O-0156. What does steady green light, directed from the control tower to the aircraft in flight, mean?

(1) CLEARED TO LAND.
(2) GIVE WAY TO ANOTHER AIRCRAFT AND CONTINUE CIRCLING.
(3) RETURN FOR LANDING.
(4) EXTREME CAUTION REQUIRED.

O-0157. For night operation, airplanes and gliders must be equipped with the following lights:

(1) Left wing tip: green light, right wing tip: red light, tail: white light.
(2) Right wing tip: green light, left wing tip: red light, tail: white light.
(3) Left wing tip: white light, right wing tip: white light, tail: red light.
(4) Left wing tip: white light, right wing tip: white light, tail: orange light.

O-0158. In addition to the required lights on the wing tips, a glider operating at night must have installed the tail light, which color is

(1) green.
(2) red.
(3) orange.
(4) white.

O-0159. When must the anticolition beacon on an aircraft be operating (if installed)?

(1) All the time the aircraft is flying.
(2) Must be switched on after engine start-up and switched off before engine shut-down.
(3) Must be on all the time the engine of an aircraft is running.
(4) Must be switched on shortly before takeoff and switched off when the aircraft vacates the runway.

**O-0160.** During a night flight, you observe a steady red light on your left and a steady red light on your right at the same altitude. You should

(1) turn to the right, because the other aircraft if approaching head-on.
(2) turn to the left, because the other aircraft if approaching head-on.
(3) continue, because the other aircraft flies in the same direction, therefore there is no danger of collision.

**O-0161.** If during a night flight steady green light and flashing orange light is observed at the same altitude, a pilot of an aircraft should

(1) pay extreme caution, because another aircraft is in emergency.
(2) give way by turning to the left, because the other aircraft is approaching head-on.
(3) pay caution, because the pilot of another aircraft should give way.
(4) alter his heading to the left, because another aircraft is crossing its path from left to right.

**O-0162.** During a night flight, you observe a steady red light and a flashing red light ahead and at the same altitude. What is the general direction of movement of the other aircraft?

(1) The other aircraft is crossing to the left.
(2) The other aircraft is crossing to the right.
(3) The other aircraft is approaching head-on.

**O-0163.** During a night flight, you observe a steady white light and a flashing red light ahead and at the same altitude. What is the general direction of movement of the other aircraft?

(1) The other aircraft is flying away from me.
(2) The other aircraft is crossing to the left.
(3) The other aircraft is crossing to the right.

**O-0164.** During a night flight, you observe steady red and steady green light ahead and at the same altitude. What is the general direction of movement of the other aircraft?

(1) The other aircraft is crossing to the left.
(2) The other aircraft is flying away from me.
(3) The other aircraft is is approaching head-on.

**O-0165.** What flag signal, given by a signalman on the takeoff spot on an aerodrome to the pilot of the towing airplane, means "GLIDER READY FOR DEPARTURE, RUNWAY CLEAR"?

(1) Waving the red flag over the head.
(2) Lowering down the red flag and lifting up and holding the white flag over the head.
(3) Holding the red flag over the head and waving the white flag vertically near ground left-right.
(4) Waving the red and the white flag over the head simultaneously.

O-0166. What is the meaning of the signal given by flags at the beginning of an aerotow takeoff when the assistant holds the red flag over his head and simultaneously waves the white flag left-right in vertical plane near ground?

(1) GLIDER READY FOR TAKE-OFF, RUNWAY CLEAR.
(2) STOP - DISCONTINUE TOWING!
(3) END OF FLYING.
(4) TAUTEN THE ROPE!

O-0167. Waving the red flag over the head on the aerotow takeoff spot means

(1) GLIDER READY FOR DEPARTURE, RUNWAY CLEAR.
(2) STOP - DISCONTINUE TOWING!
(3) FLYING TERMINATED.
(4) TAUTEN THE ROPE!

O-0168. Simultaneously waving the white flag and the red flag over the head on the aerotow takeoff spot means

(1) STOP - DISCONTINUE TOWING!
(2) TOW ROPE TIGHT.
(3) GLIDER READY FOR DEPARTURE, RUNWAY CLEAR.
(4) FLYING TERMINATED.

O-0169. By selection 118.27 on a VHF radio station the pilot actually selects

(1) frequency 118.270 MHz.
(2) frequency band 118.270 - 118.299 MHz.
(3) frequency 118.275 MHz.
(4) frequency 118.270 KHz.

O-0170. In order to work with the radio equipment by earphones, the switches on the audio panel in the cockpit of an aircraft should be set to which position?

(1) AUTO.
(2) SPEAKER.
(3) PHONE.

O-0171. When the switches on an audio control panel are set to the SPEAKER position, all radio equipment could be heard by

(1) the earphones only.
(2) the speaker only.
(3) the speaker and through the earphones too.

**O-0172.** What happens if the AUTO position is selected by the very first switch in the row of switches on the audio control panel?

(1) Both Comm stations are heard, provided their individual switches labeled SPEAKER/PHONE are selected either up or down, otherwise they are not.
(2) All radio equipment are heard at the time, regardless of the position of the individual switches labeled SPEAKER/PHONE.
(3) only the message beginning with our callsign is heard.
(4) only the COMM station selected by the transmitter switch is heard provided both individual COMM switches are selected to OFF (the middle position).

**O-0173.** When activated, an emergency locator transmitter (ELT) transmits on

(1) 122.3 MHz and 122.8 MHz.
(2) 123.0 MHz and 119.0 MHz.
(3) 121.5 MHz and 243.0 MHz.
(4) 118.0 MHz and 118.8 MHz.

**O-0174.** To which position should the ELT switch be set before takeoff?

(1) ON.
(2) ARM or AUTO.
(3) OFF.

**O-0175.** What should be done if you receive a whistling waving signal on frequency 121.5 MHz?

(1) Nothing, because this is an ATC test signal.
(2) The battery should be sent for recharging as soon as possible.
(3) Nothing, because such signals announce close beginning of a VOLMET transmittion.
(4) The nearest ATC unit should be called and report the transmitting ELT somewhere.

**O-0176.** For an emergency locator transmitter (ELT) testing the selector switch on a device should be set to

(1) OFF.
(2) ON.
(3) ARM or AUTO.

**O-0177.** When may an emergency locator transmitter (ELT) be tested?

(1) Anytime.
(2) At 15 and 45 minutes past the hour.
(3) During the first five minutes after the hour.

**O-0178.** Which procedure is recommended to ensure that the emergency locator transmitter (ELT) has not been activated?

(1) Turn off the aircraft ELT after landing.
(2) Ask the airport tower if they are receiving an ELT signal.
(3) Monitor 121.5 before engine shutdown.

## NAVIGATION (N)

**N-0001.** Which points on the Earth's surface determine the Earth's axis?

(1) North geographic pole and north magnetic pole.
(2) North and south geographic pole.
(3) North and south magnetic pole.
(4) Equator-hemisphere.

**N-0002.** The circumference of the Earth along the Equator is approximately

(1) 21,600 NM.
(2) 40,075 km.
(3) 30,000 NM.
(4) 24,000 km.

**N-0003.** The Earth's diameter, when compared to the Earth' axis, is

(1) longer by 43 km.
(2) twice as much greater.
(3) the same.
(4) shorter by 42 km.

**N-0004.** The Earth's diameters on the Equator and between the poles are

(1) 40,076.594 km and 4,009.153 km.
(2) 6,378.388 km and 6,356.912 km.
(3) 12,757 km and 12,714 km.
(4) 6,356.912 km and 6,378.388 km.

**N-0005.** Which of the following statements, regarding rotation of the Earth around the Sun, is correct? The Earth

(1) encircles the Sun one time during summer and one time during winter.
(2) does not circle around the Sun because it is stationary with the Sun circling around it.
(3) encircles the Sun in one year.
(4) encircles the Sun in one day.

**N-0006.** The Earth's globe rotates

(1) around its axis in the direction from the east to the west.
(2) together with the Sun in the direction from the east to the west.
(3) around its axis in the direction from the west to the east.
(4) around so called Sun's tropic.

**N-0007.** The orbit of the Earth is

(1) a circle with the Sun at the center.
(2) an ellipse with the Sun at one of the foci.
(3) an ellipse with the Sun at different point inside it.
(4) a circle around which the Sun rotates.

**N-0008.** What is the cause of the seasons?

(1) Irregular movement of the Earth around the Sun.
(2) Uneven temperatures in space.
(3) A shape of the Earth's orbit.
(4) The tilt of the Earth's axis.

**N-0009.** The shortest distance between two points on the Earth's globe is called

(1) rhumb line.
(2) great circle.
(3) lambodrome.
(4) small circle.

**N-0010.** Great Circle(s) on the Earth's surface is(are)

(1) the equator only.
(2) the equator and meridians.
(3) the equator, meridians and parallels of latitude.
(4) the equator, meridians and orthodroms.

**N-0011.** The equator is the Great Circle which plane

(1) divides the Earth's globe into the east and west hemisphere.
(2) is parallel to the Earth's axis.
(3) divides the Earth's globe into the north and south hemisphere.

**N-0012.** Which statement about longitude and latitude is true?

(1) Lines of longitude are parallel to the Equator.
(2) Lines of longitude cross the Equator at right angles.
(3) The 0° line of latitude passes through Greenwich, England.

**N-0013.** How many Great Circles (orthodroms) can be determined on the Earth's surface?

(1) 90.
(2) 180.
(3) 360.
(4) an infinite number.

**N-0014.** The Great Circle on the Earth's globe is the cross-section of the Earth's surface and the plane passing through

(1) the center of the Earth and is always rectangular to the Earth's axis.
(2) the center of the Earth and is always oblique to the Earth's axis.
(3) the center of the Earth and is tilt to the Earth's axis at any angle.
(4) any two points on the Earth's surface; the cross-section with the Earth's surface is the shortest distance between these points.

**N-0015.** Which of the following circles on the Earth's globe does not have the center at the Earth's center?

(1) Orthodrom.
(2) Small Circle.
(3) Great Circle.
(4) Equator.

**N-0016.** What is the characteristic of the Rhumb Line?

(1) It cuts meridians under various angles.
(2) It is the shortest distance between two points on the Earth's globe.
(3) It cuts meridians under constant angle.
(4) It is the Great Circle.

**N-0017.** Which circles, forming the graticule, are at the same time Great Circles and Rhumb Lines?

(1) Parallel of latitude only.
(2) Meridians and equator.
(3) Meridians only.
(4) Equator only.

**N-0018.** The Sun travels across the sky an arc of 5° in

(1) 60 minutes.
(2) 30 minutes.
(3) 20 minutes.
(4) 4 minutes.

**N-0019.** The Sun makes in one hour time an arc between which of the following meridians?

(1) From 5°E to 10°W.
(2) From 15°E to 5°E.
(3) From 10°E to 10°W.
(4) From 10°W to 5°E.

**N-0020.** What time is needed for the Sun's azimuth to change by 27 arc degrees?

(1) 30 minutes.
(2) 90 minutes.
(3) 405 minutes.
(4) 108 minutes.

**N-0021.** The Co-ordinated Universal Time (UTC) is

(1) the Local Time.
(2) the Zone Time.
(3) the time on the longitude 0 degrees.
(4) the Standard Time.

**N-0022.** 13:00 accordingly to the MidEuropean Summer Time is

(1) 1200 UTC.
(2) 1400 UTC.
(3) 0100 UTC.
(4) 1100 UTC.

**N-0023.** An aircraft over Ljubljana is headed exactly to the south. It is 1200 UTC. What is the relative bearing of the Sun?

(1) Exactly straight-in.
(2) Left of the aircraft's nose.
(3) Right of the aircraft's nose.
(4) May be left or right of the aircraft's nose, with regard to the season.

**N-0024.** The geographic longitude is the distance of a point on the Earth's surface from the

(1) Equator, measured in statute miles.
(2) Equator, measured in arc degrees.
(3) Prime Meridian, measured in arc degrees.
(4) Prime Meridian, measured in geographic miles.

**N-0025.** What is the latitude of a point on the Equator?

(1) 0°.
(2) 90°N.
(3) 180°S.
(4) 90°S.

**N-0026.** Longitude change between point A (04° 14' 28" E) an B (02° 30' 30" E) on the Earth's globe is

(1) 01° 43' 58".
(2) 06° 44' 58".
(3) 02° 44' 58".
(4) 02° 16' 02".

N-0027. What is the difference between the latitude of the point A and the point B, which are located on following parallels of latitude:

A: 15° 54' 30" N
B: 10° 33' 30" S

(1) 05° 21' 00".
(2) 26° 28' 00".
(3) 25° 27' 00".
(4) 05° 28' 00".

N-0028. Determine the latitude of the point B, located 240 NM north of the point A with the latitude 62° 33' 00" N.

(1) 58° 33' 00" N.
(2) 86° 33' 00" N.
(3) 66° 33' 00" N.
(4) 64° 33' 00" N.

N-0029. The distance between the parallel of latitude 10°N and the parallel of latitude 11°N, measured along the meridian, is

(1) 60 SM.
(2) 60 km.
(3) 111 km.
(4) 111 NM.

N-0030. The geographic coordinates of the point A are

(see Figure 14)

(1) N 49° 11,0' and E 21° 18,0'.
(2) N 50° 11,0' and E 20° 12,0'.
(3) N 50° 49,0' and E 20° 12,0'.
(4) N 49° 49,0' and E 21° 18,0'.

N-0031. Which navigational clue is located at the position with the geographic coordinates N 50° 19,0' and E 21° 04,2'?

(see Figure 14)

(1) The point C.
(2) The railway bridge over the river Visla.
(3) The town Mielec.
(4) The settlement Stopnica.

N-0032. Which are the geographic coordinates of the point B

(see Figure 14)

(1) N 50° 07,4' and E 20° 31,0'.
(2) N 57° 04,0' and E 20° 31,0'.
(3) N 50° 07,4' and E 23° 01,0'.
(4) N 57° 04,0' and E 21° 18,0'.

**N-0033.** The geographic coordinates of the point D are

(see Figure 15)

(1) N 44° 21,7' and E 79° 12,8'.
(2) N 44° 21,7' and W 78° 47,2'.
(3) N 44° 38,3' and E 78° 12,8'.
(4) N 57° 04,0' and W 79° 12,8'.

**N-0034.** Which airfield has the geographical coordinates N 44° 43,7' and W 78° 54,8'?

(see Figure 15)

(1) Military airport Greenbank.
(2) Airport Lindsay.
(3) Hydrodrom Head Lake.
(4) Hydrodrom Balsam Lake.

**N-0035.** The geographic coordinates of military airport Greenbank are

(see Figure 15)

(1) N 44° 52,2' and W 78° 58,8'.
(2) N 44° 07,8' and W 79° 01,2'.
(3) N 44° 07,8' and W 78° 58,8'.
(4) N 44° 52,2' and W 79° 01,2'.

**N-0036.** The distance of 1 NM is equivalent to

(1) the distance of one arc minute on a Meridian.
(2) exactly the 40-thousandth part of the Earth's perimeter.
(3) the distance between a Meridian and the pole.
(4) the perimeter of a Polar Circle.

**N-0037.** The distance of 1 NM equals to

(1) 1,111 m.
(2) 1,432 m.
(3) 1,609 m.
(4) 1,852 m.

**N-0038.** The formula for a quick calculation from kilometers to nautical miles is:

(1) (km : 2) + 10%.
(2) (km x 2) - 22%.
(3) (km : 2) - 10%.
(4) (km x 2) - 10%.

**N-0039.** Approximately how many kilometers are in 70 nautical miles?

(1) 130 km.
(2) 135 km.
(3) 140 km.
(4) 145 km.

N-0040. The distance of 1 statute mile is equal to

(1) 1,852 m.
(2) 1,609 m.
(3) 1,432 m.
(4) 1,111 m.

N-0041. How many kilometers are in 50 SM (statute miles)?

(1) Approximately 92 km.
(2) Exactly 100 km.
(3) Little less than 75 km.
(4) Approximately 80 km.

N-0042. Where on the chart can the distance between the two points be determined, which has been callipered by a pair of compasses or marked on the edge of a piece of paper?

(1) On each Meridian.
(2) Only on the Meridian at the midpoint between points.
(3) Only on the scale ribbon on the edge of the chart.
(4) On each Meridian or on the scale ribbon on the edge of the chart.

N-0043. On a chart, 6 cm represents the distance 15 km; on the same chart, 4 cm represents the distance 10 km. What is the scale of the chart?

(1) 1:300 000.
(2) 1:250 000.
(3) 1:400 000.
(4) 1:500 000.

N-0044. The scale of the chart is 1:500 000. How many centimeters represents the distance 105km?

(1) 10.5 cm.
(2) 21.0 cm.
(3) 42.0 cm.
(4) 84.0 cm.

N-0045. The scale of the chart is 1:500 000. How many centimeters represents the distance 220km?

(1) 110 cm.
(2) 11 cm.
(3) 44 cm.
(4) 40.4 cm.

N-0046. Determine the distance between the point A and B!

(see Figure 14)

(1) 55 NM.
(2) 55 km.
(3) 35 km.
(4) 35 NM.

**N-0047.** The distance of the route segment B-C on the chart is

(see Figure 14)

(1) 61 km.
(2) 52 NM.
(3) 33 SM.
(4) 54 km.

**N-0048.** The distance between the points C and A on the chart is

(see Figure 14)

(1) 67 NM.
(2) 44 SM.
(3) 44 NM.
(4) 67 SM.

**N-0049.** The distance of the route segment D-E on the chart is

(see Figure 15)

(1) 30 NM.
(2) 33 NM.
(3) 39 NM.
(4) 42 NM.

**N-0050.** The distance between the points E and F on the chart is

(see Figure 15)

(1) 42 NM.
(2) 38 NM.
(3) 34 NM.
(4) 30 NM.

**N-0051.** What is the distance of the route segment F-D on the chart?

(see Figure 15)

(1) 29 km.
(2) 21 NM.
(3) 29 SM.
(4) 29 NM.

**N-0052.** The distance between the points ALFA and BRAVO is 107 NM. If an aircraft covers first 16 NM in 10 minutes, what time does it take to travel the entire route ALFA-BRAVO with the same groundspeed?

(1) 1 hour and 6 minutes.
(2) 1 hour and 3 minutes.
(3) 1 hour and 1 minute.
(4) 59 minutes.

**N-0053.** How far will an aircraft travel with 32 gal of usable fuel with fuel consumption 7,1 gal/h at the groundspeed 108 kts? (Allow 1-hour final reserve fuel)

(1) 379 NM.
(2) 384 NM.
(3) 420 NM.
(4) 487 NM.

N-0054. How far will an aircraft travel with 27 gal of usable fuel with fuel consumption 6,8 gal/h at the groundspeed 93 kts? (Allow 6-gallons final reserve fuel)

(1) 287 NM.
(2) 292 NM.
(3) 301 NM.
(4) 308 NM.

N-0055. How many gallons of usable fuel should be on board of an aircraft for a distance flight of 300 NM at the groundspeed 120 kts and average fuel consumption 7,3 gal/h? (Allow 1-hour fuel reserve).

(1) 15.0 gal
(2) 18.3 gal.
(3) 21.4 gal.
(4) 25.6 gal.

N-0056. A distance in meters could be converted to feet using the formula:

(1) m x 0.3.
(2) (m x 3) + 10%.
(3) (m : 10) x 3.
(4) (m x 3) : 10.

N-0057. An altitude 1,500 meters is approximately

(1) 3,600 ft.
(2) 4,000 ft.
(3) 4,500 ft.
(4) 4,900 ft.

N-0058. On a chart we read the obstacle altitude 275 meters. Regarding the rule of height clearance 1,000 feet over obstacles, what is the lowest altitude for overflying the obstacle?

(1) 2,230 ft.
(2) 2,130 ft.
(3) 1,900 ft.
(4) 1,230 ft.

N-0059. Altitude 6,000 ft is approximately

(1) 1,200 m.
(2) 1,800 m.
(3) 3,000 m.
(4) 12,000 m.

**N-0060.** Approximately what QNH pressure corresponds to the QFE pressure 1000 hPa on an airfield with the elevation 200 meters?

(1) 985 hPa.
(2) 990 hPa.
(3) 1025 hPa.
(4) 1035 hPa.

**N-0061.** If a pilot changes the altimeter setting from 996 hPa to 1033 hPa, the altitude indication will

(1) not change.
(2) increase.
(3) decrease at low temperatures and increase at high temperatures.
(4) decrease for 1,000 ft.

**N-0062.** When set to 1008 hPa, an aircraft's altimeter indicates 1,600 ft. What would be the indication if setting is changed to 1009 hPa?

(1) 1,590 ft.
(2) 1,630 ft.
(3) 1,610 ft.
(4) 1,570 ft.

**N-0063.** If a pilot changes the altimeter setting from 1010 hPa to 1000 hPa, what is the approximate change in indication?

(1) Altimeter will indicate 300 ft lower.
(2) Altimeter will indicate 300 ft higher.
(3) No change in indication.
(4) Variously, dependent on QNH.

**N-0064.** Determine IAS of an aircraft for the following conditions:

TAS ..... 115 kt
OAT ..... 20°C
Altitude ..... 8,000 ft MSL
QNH ..... 1013.2 hPa

*Airspeed Indicator Calibration Card*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *KIAS* | *40* | *50* | *60* | *70* | *80* | *90* | *100* | *110* | *120* |
| *KCAS* | *46* | *53* | *60* | *69* | *78* | *88* | *97* | *107* | *117* |

(1) 100 kts.
(2) 104 kts.
(3) 107 kts.
(4) 113 kts.

N-0065. When cruising at pressure altitude 5,000 ft with a calibrated airspeed (CAS) of 100 kts and at outside temperature 5°C, what would be your true airspeed (TAS)?

(1) 120 kts.
(2) 116 kts.
(3) 112 kts.
(4) 108 kts.

N-0066. At an pressure altitude of 3.000 ft, and an outside temperature of 10°C, what would be the true airspeed (TAS) if a pilot reads 120 kts on the airspeed indicator? (The installation and instrumental error are not taken into consideration).

(1) 122 kts.
(2) 126 kts.
(3) 130 kts.
(4) 134 kts.

N-0067. You are flying at pressure altitude 500 ft with an indicated airspeed (IAS) of 110 kts, the outside air temperature is minus 25°C (IAS=CAS). Determine the true airspeed (TAS).

(1) 103 kts.
(2) 110 kts.
(3) 112 kts.
(4) 115 kts.

N-0068. At pressure altitude 8,000 ft with the outside temperature of 10°C, what indicated airspeed (IAS) is required to achieve the true airspeed (TAS) 125 kts. (Neglect the difference between IAS and CAS).

(1) 95 kts.
(2) 102 kts.
(3) 109 kts.
(4) 111 kts.

N-0069. At pressure altitude 7,000 ft with the outside temperature of 5°C, what calibrated airspeed (CAS) is required to achieve the true airspeed (TAS) of 150 kts?

(1) 134 kts.
(2) 137 kts.
(3) 139 kts.
(4) 142 kts.

N-0070. At pressure altitude 4,000 ft, what is the approximate outside temperature at which the calibrated airspeed (CAS) and the true airspeed (TAS) are equal?

(1) 0°C.
(2) +15°C.
(3) -15°C.
(4) -25°C.

**N-0071.** When flying at pressure altitude 3,000 ft, an airspeed indicator would indicate more than the true airspeed (TAS), at outside temperatures

(1) +15°C or higher.
(2) +15°C or lower.
(3) -15°C or higher.
(4) -15°C or lower.

**N-0072.** What does a measuring unit knot used in aviation mean?

(1) SM/h.
(2) NM/h.
(3) km/h.
(4) m/h.

**N-0073.** The wind velocity of 10 m/sec approximately equals to

(1) 40 kts.
(2) 20 kts.
(3) 5 kts.
(4) 2,5 kts.

**N-0074.** Wind velocity 5 kts is approximately

(1) 10 km/hour.
(2) 5 statute miles/hour.
(3) 20 m/sec.
(4) All of the above is correct.

**N-0075.** A velocity 120 km/h, expressed in knots, is

(1) 50 kts.
(2) 58 kts.
(3) 60 kts.
(4) 65 kts.

**N-0076.** If a vertical speed indicator of a towing airplane shows 500 ft/min, the approximately aerotow's rate-of-climb in meters-per-second is

(1) 1,5 m/sec.
(2) 3,5 m/sec.
(3) 5 m/sec.
(4) 2,5 m/sec.

**N-0077.** What is the ground speed (GS) of an aircraft, covering in 40 minutes the distance, that represents 10.8 cm on an 1:500 000 chart?

(1) 81 kts.
(2) 100 mph.
(3) 81 km/h.
(4) 100 km/h.

N-0078. An aircraft would cover a 120 km-distance in no wind condition in 2 hours and 40 minutes, however in actual meteo conditions the flight lasted 3 hours and 5 minutes. What was the longitudinal wind component on route?

(1) 16 kts tailwind.
(2) 16 km/h headwind.
(3) 6 km/h headwind.
(4) 6 kts tailwind.

N-0079. The distance of the route from the point X to the point Y via the control point Z is 84 km. If an aircraft covers the first segment X-Z in 50 minutes, what will be the total time of flight between the points X and Y?

(1) 45 minutes.
(2) 2 hours.
(3) 50 minutes.
(4) 1 hour and 10 minutes.

N-0080. How far will an aircraft travel in 2-1/2 minutes with a groundspeed of 98 knots?

(1) 2.45 NM.
(2) 3.35 NM.
(3) 4.08 NM.

N-0081. 100 kg is how many pounds?

(1) 180 lbs.
(2) 200 lbs.
(3) 220 lbs.
(4) 250 lbs.

N-0082. 90 pounds is how many kilograms?

(1) 37 kg.
(2) 41 kg.
(3) 45 kg.
(4) 52 kg.

N-0083. 25 US gallons is how many liters?

(1) 95 l.
(2) 98 l.
(3) 100 l.
(4) 105 l.

N-0084. Which mark on the wind triangle represents a true course?

(see Figure 13)

(1) mark 4.
(2) mark 3.
(3) mark 2.
(4) mark 1.

**N-0085.** Which mark on the wind triangle represents a true heading?

(see Figure 13)

(1) mark 4.
(2) mark 3.
(3) mark 2.
(4) mark 1.

**N-0086.** Which mark on the wind triangle represents a magnetic heading?

(see Figure 13)

(1) mark 1.
(2) mark 2.
(3) mark 3.
(4) mark 4.

**N-0087.** Which mark on the wind triangle sketch denotes a compass heading?

(see Figure 13)

(1) Number 1.
(2) Number 2.
(3) Number 3.
(4) Number 4.

**N-0088.** Which mark on the wind triangle represents a wind correction angle?

(see Figure 13)

(1) mark 2.
(2) mark 3.
(3) mark 4.
(4) mark 5.

**N-0089.** Which mark on the wind triangle represents a magnetic variation?

(see Figure 13)

(1) mark 3.
(2) mark 5.
(3) mark 9.
(4) mark 10.

**N-0090.** Which mark on the wind triangle represents a compass deviation?

(see Figure 13)

(1) mark 5.
(2) mark 8.
(3) mark 9.
(4) mark 10.

**N-0091.** Which mark on the wind triangle represents an aircraft's true airspeed (TAS)?

(see Figure 13)

(1) mark 5.
(2) mark 6.
(3) mark 7.
(4) mark 8.

**N-0092.** Which mark on the wind triangle represents an aircraft's ground speed (GS)?

(see Figure 13)

(1) mark 5.
(2) mark 6.
(3) mark 7.
(4) mark 8.

**N-0093.** Which mark on the wind triangle represents a wind vector?

(see Figure 13)

(1) mark 5.
(2) mark 6.
(3) mark 7.
(4) mark 8.

**N-0094.** What is the meaning of the term "drift angle" in navigation?

(1) The angle between an aircraft's longitudinal axis and an actual path.
(2) The difference between a direction of the true air speed of an aircraft and a desired track.
(3) The difference between a magnetic course and a wind direction.
(4) The difference between an angle under wind blows to the vector of an actual true air speed and a direction of an aircraft's longitudinal axis.

**N-0095.** A Wind Correction Angle is the angle difference between

(1) true heading and desired true course.
(2) desired true and desired magnetic course.
(3) true and magnetic heading.
(4) magnetic and compass heading in no wind condition.

**N-0096.** Which azimuth corresponds to the general direction WNW?

(1) 247.5°.
(2) 292.5°.
(3) 337.5°.
(4) 202.5°.

**N-0097.** When planning a distance flight, true course measurements on a ICAO VFR aeronautical chart should be made at a meridian near the midpoint of the course because the

(1) values of the isogonic lines change from point to point.
(2) angles formed by lines of longitude and the course line vary from point to point.
(3) angles formed by isogonic lines and lines of latitude vary from point to point.

**N-0098.** Which parameter is included in the reckoning of a magnetic course?

(1) Compass deviation.
(2) Magnetic inclination.
(3) Wind correction angle.
(4) Magnetic variation.

N-0099. The angle between a direction toward geographic north and a direction toward magnetic north is called

(1) compass deviation.
(2) variation.
(3) inclination.
(4) convergency of meridians.

N-0100. The angular difference between true north and magnetic north is

(1) magnetic deviation.
(2) magnetic variation.
(3) compass acceleration error.

N-0101. The magnetic variation value of a given point on the Earth's surface can be obtained by

(1) referring to the table of magnetic variation in the cockpit.
(2) referring to the isogonic lines on aeronautical charts.
(3) calculating the angular difference between the meridian of a given point and the Greenwich meridian.
(4) calculating the difference between magnetic and compass heading.

N-0102. Lines on geographical charts joining points of equal magnetic variation, are called

(1) izogonic lines.
(2) agonic lines.
(3) izoclinic lines.
(4) izobars.

N-0103. Lines on geographical charts joining points of a zero magnetic variation, are called

(1) izogonic lines.
(2) izoclinic lines.
(3) agonic lines.
(4) aclinic lines.

N-0104. What is the magnetic variation of the area?

(see Figure 14)

(1) 50° 30' W.
(2) 21° E.
(3) 50° W.
(4) 15° E.

N-0105. When calculating magnetic direction from a given true direction, westerly variation should be

(1) added.
(2) substracted.
(3) multiplicated.
(4) divided.

**N-0106.** Magnetic course is calculated using the equation

(1) true heading plus/minus magnetic variation.
(2) true course plus/minus magnetic variation.
(3) true course plus/minus compass deviation.
(4) magnetic heading plus/minus compass deviation.

**N-0107.** Magnetic heading is

(1) true heading plus/minus variation.
(2) true course plus/minus variation.
(3) true course plus/minus deviation.
(4) magnetic course plus/minus deviation.

**N-0108.** Is it possible for a desired true track, true heading and actual true track to have the same value?

(1) No, in no case.
(2) Yes.
(3) Yes, because these values are always equal.
(4) This is possible only when flying in north or south direction.

**N-0109.** When converting from true course to magnetic heading, a pilot should

(1) subtract easterly variation and right wind correction angle.
(2) add westerly variation and subtract left wind correction angle.
(3) subtract westerly variation and add right wind correction angle.

**N-0110.** Which element of the wind triangle has a null value if a magnetic heading equals compass heading?

(1) Magnetic dip.
(2) Compass deviation.
(3) Drift.
(4) Magnetic variation.

**N-0111.** Determine the compass heading for the following:

true course ..... 168°
wind correction angle .....+6°
variation ..... 5°E

*Compass deviation table*

| *magn.dir.* | *N* | *030* | *060* | *E* | *120* | *150* | *S* | *210* | *240* | *W* | *300* | *330* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *deviation* | *0* | *0* | *1E* | *3E* | *2E* | *0* | *3W* | *1W* | *0* | *2E* | *1E* | *1E* |

(1) 167°.
(2) 177°.
(3) 187°.
(4) 171°.

**N-0112.** The true heading for a flight between two points of a route is 270° and the wind correction angle is -10°. What will be the true heading for a return flight between the same points?

(1) 090°.
(2) 180°.
(3) 110°.
(4) 120°.

**N-0113.** The true course from the point A to the point B is

(see Figure 14)

(1) 031°.
(2) 059°.
(3) 239°.
(4) 301°.

**N-0114.** What is the true course of the route segment B-C?

(see Figure 14)

(1) 042°.
(2) 142°.
(3) 222°.
(4) 302°.

**N-0115.** What is the magnetic course from the point C to the point A?

(see Figure 14)

(1) 155°.
(2) 170°.
(3) 185°.
(4) 190°.

**N-0116.** Determine the true course between the point D and the point E.

(see Figure 15)

(1) 057°.
(2) 123°.
(3) 237°.
(4) 303°.

**N-0117.** The true course of the route segment E-F is

(see Figure 15)

(1) 260°.
(2) 100°.
(3) 080°.
(4) 070°.

**N-0118.** What is the true course of the route segment F-D?

(see Figure 15)

(1) 288°.
(2) 252°.
(3) 198°.
(4) 018°.

**N-0119.** What is the magnetic course of the route segment A-B?

(see Figure 14)

(1) 171°.
(2) 286°.
(3) 301°.
(4) 316°.

**N-0120.** What is the magnetic course from the point B to the point C?

(see Figure 14)

(1) 027°.
(2) 042°.
(3) 057°.
(4) 142°.

**N-0121.** What is the magnetic course from the point C to the point A?

(see Figure 14)

(1) 155°.
(2) 170°.
(3) 185°.
(4) 190°.

**N-0122.** The magnetic course of the route segment D-E is

(see Figure 15)

(1) 303°.
(2) 322°.
(3) 314°.
(4) 292°.

**N-0123.** Determine the magnetic course for a flight from the point E to the point F.

(see Figure 15)

(1) 069°.
(2) 089°.
(3) 091°.
(4) 279°.

**N-0124.** The magnetic course of the route segment F-D is

(see Figure 15)

(1) 087°.
(2) 187°.
(3) 198°.
(4) 209°.

**N-0125.** Determine the magnetic heading for a flight from the point A to the point B, if the true airspeed (TAS) is 105 kts and the wind is 045°/30 kts.

(see Figure 14)

(1) 332°.
(2) 317°.
(3) 302°.
(4) 011°.

**N-0126.** What magnetic heading should a pilot maintain in order to stay on the flight segment B-C, if the true airspeed (TAS) is 90 kts and the wind is 300°/20 kts?

(see Figure 14)

(1) 014°.
(2) 029°.
(3) 030°.
(4) 043°.

**N-0127.** Determine the magnetic heading for the flight segment C-A, if the true airspeed (TAS) is 110 kts and the wind is 090°/25 kts.

(see Figure 14)

(1) 172°.
(2) 168°.
(3) 157°.
(4) 142°.

**N-0128.** Determine the magnetic heading for a flight from the point D to the point E, if the true airspeed (TAS) is 115 kts and the wind is 200°/35 kts.

(see Figure 15)

(1) 275°.
(2) 286°.
(3) 297°.
(4) 303°.

**N-0129.** Determine the magnetic heading for the flight segment E-F, if the true airspeed (TAS) is 125 kts and the wind is 360°/40 kts.

(see Figure 15)

(1) 051°.
(2) 055°.
(3) 062°.
(4) 073°.

**N-0130.** Determine the magnetic heading for the flight segment F-D, if the true airspeed (TAS) is 100 kts and the wind is 260°/30 kts.

(see Figure 15)

(1) 224°.
(2) 217°.
(3) 202°.
(4) 213°.

**N-0131.** An aircraft overflies point A at time 14:30 with TAS 95 kts. If the wind in this area is reported as 090°/20 kt what will be ETA at point B?

(see Figure 14)

(1) 14:35.
(2) 14:40.
(3) 14:44.
(4) 14:49.

**N-0132.** Determine the estimated time on route for the flight segment C-A, if the wind is 200°/25 kts and the true airspeed is 100 kts.

(see Figure 14)

(1) 52 min.
(2) 45 min.
(3) 38 min.
(4) 34 min.

**N-0133.** Determine the estimated time on route for a flight from the airport D to the airport E. The wind aloft is 090°/20 kts and the true airspeed is 95 kts. Add 7 minutes for takeoff and landing.

(see Figure 15)

(1) 18 min.
(2) 20 min.
(3) 22 min.
(4) 30 min.

**N-0134.** What is the ETE of the route segment E-F, if the TAS is 108 kts and the wind 250°/30 kts?

(see Figure 15)

(1) 9 min.
(2) 11 min.
(3) 13 min.
(4) 15 min.

**N-0135.** An aircraft overflies point F at 07:46. What is the estimated time over point D, if the true airspeed is 103 kts and the wind 360°/40 kts?

(see Figure 15)

(1) 07:35.
(2) 07:55.
(3) 07:58.
(4) 08:01.

**N-0136.** If a true heading of 135° results in a ground track of 130° and a true airspeed of 135 knots results in a groundspeed of 140 knots, the wind would be from

(1) 019° and 12 knots.
(2) 200° and 13 knots.
(3) 246° and 13 knots.

**N-0137.** On a cross-country flight, point A is crossed at 1500 hours and the plan is to reach point B at 1530 hours. Use the following information to determine the indicated airspeed required to reach point B on schedule.

| | |
|---|---|
| Distance between A and B | 70 NM |
| Forecast wind | 310°/15 kt |
| Pressure altitude | 8,000 ft |
| Ambient temperature | -10 °C |
| True course | 270° |

The required indicated airspeed would be approximately

(1) 126 knots.
(2) 137 knots.
(3) 152 knots.

**N-0138.** Which statement is true about homing when using ADF?

(1) Homing is a practical navigational method, usable for flying to and away from the NDB station.
(2) Homing allows flying along curved path only, which leads to the NDB station.
(3) Homing requires an ADF with the automatic or at least manually adjusting compass rose.

**N-0139.** To use an VHF/DF facilities for assistance in location an aircraft's position, the aircraft must have a

(1) VHF transmitter and receiver.
(2) 4096-code transponder.
(3) VOR receiver and DME.

**N-0140.** An NDB normally transmits on which frequency band?

(1) 190 to 535 KHz.
(2) 400 to 1020 Hz.
(3) 962 to 1213 MHz.

**N-0141.** If you are 30 miles from the NDB transmitter and the ADF indicates 3° off course, how many miles off course are you?

(1) 1.5 miles.
(2) 3 miles.
(3) 6 miles.

**N-0142.** Which is true regarding tracking on a desired bearing when using ADF during crosswind conditions?

(1) To track outbound, heading corrections should be made away from the ADF pointer.
(2) When on the desired track outbound with the proper drift correction established, the ADF pointer will be deflected to the windward side of the tail position.
(3) When on the desired track inbound with the proper drift correction established, the ADF pointer will be deflected to the windward side of the nose position.

**N-0143.** As shown by ADF A, the relative bearing TO the station is

(see Figure 22)

(1) 030°.
(2) 210°.
(3) 240°.

**N-0144.** As shown by ADF B, the relative bearing TO the station is

(see Figure 22)

(1) 190°.
(2) 235°.
(3) 315°.

**N-0145.** As shown by ADF D, the relative bearing TO the station is

(see Figure 22)

(1) 020°.
(2) 060°.
(3) 340°.

**N-0146.** As shown by ADF E, the relative bearing TO the station is

(see Figure 21)

(1) 045°.
(2) 180°.
(3) 315°.

**N-0147.** As shown by ADF F, the relative bearing TO the station is

(see Figure 21)

(1) 090°.
(2) 180°.
(3) 270°.

**N-0148.** As shown by ADF G, the relative bearing TO the station is

(see Figure 21)

(1) 090°.
(2) 180°.
(3) 270°.

**N-0149.** As shown by ADF A, the magnetic bearing TO the station is

(see Figure 22)

(1) 030°.
(2) 180°.
(3) 210°.

**N-0150.** If receiving ADF indication B, what magnetic heading should the aircraft be turned to fly directly to the NDB station?

(see Figure 22)

(1) 010°.
(2) 145°.
(3) 190°.

**N-0151.** If receiving ADF indication B, what approximate magnetic heading should the aircraft be turned to intercept the 180° bearing TO the station?

(see Figure 22)

(1) 040°.
(2) 160°.
(3) 220°.

**N-0152.** If an ADF indicator in the cockpit corresponds to the figure C, the magnetic bearing FROM the station is

(see Figure 22)

(1) 025°.
(2) 115°.
(3) 295°.

**N-0153.** Which of the figures corresponds to an ADF indicator of an aircraft, flying TO the station with a right crosswind?

(see Figure 22)

(1) A.
(2) B.
(3) D.

**N-0154.** What is the magnetic bearing FROM the station of an aircraft with an ADF indication, depicted in figure A?

(see Figure 22)

(1) 030°.
(2) 150°.
(3) 180°.

**N-0155.** On a magnetic heading of 320° and with an ADF indication as figure H, the magnetic bearing TO the station is

(see Figure 21)

(1) 005°.
(2) 185°.
(3) 225°.

**N-0156.** On a magnetic heading of 035° and with an ADF indication as figure I, the magnetic bearing TO the station is

(see Figure 21)

(1) 035°.
(2) 180°.
(3) 215°.

**N-0157.** On a magnetic heading of 120° and with an ADF indication as figure J, the magnetic bearing TO the station is

(see Figure 21)

(1) 045°.
(2) 165°.
(3) 270°.

**N-0158.** If the magnetic bearing of an aircraft TO the station is 240°, what is the magnetic heading if the ADF indicator corresponds to the figure J?

(see Figure 21)

(1) 045°.
(2) 105°.
(3) 195°.

**N-0159.** If the magnetic bearing of an aircraft TO the station is 030°, what is the magnetic heading if the ADF indicator corresponds to the figure K?

(see Figure 21)

(1) 060°.
(2) 120°.
(3) 270°.

**N-0160.** If the magnetic bearing of an aircraft TO the station is 135°, what is the magnetic heading if the ADF indicator corresponds to the figure L?

(see Figure 21)

(1) 135°.
(2) 270°.
(3) 360°.

**N-0161.** Choose the correct sequence of procedures in the cockpit for flying inbound to the VOR station.

a) Rotate the OBS selector knob to center the CDI needle with TO indication.
b) Check the identification signal.
c) Check for proper frequency selected.
d) Turn the aircraft into the heading, equal to the radial selected on the OBS.

(1) b, c, a, d
(2) d, a, b, c
(3) a, b, c, d
(4) c, b, a, d

**N-0162.** VOR radials are

(1) magnetic directions.
(2) compass directions.
(3) true directions.
(4) relative bearings.

**N-0163.** An aircraft has a DME reading 120 miles from a VOR station and a CDI indication is one-fifth of a full deflection to one side. Approximately how many miles off the course centerline is the aircraft?

(1) 1,5 NM.
(2) 3,0 NM.
(3) 6,7 NM.

**N-0164.** When using a VOR for navigation, station passage is indicated

(1) when the OFF flag appears.
(2) when the TO-FROM flag begins to flicker.
(3) when the first full-scale deflection of the CDI.
(4) by the first complete reversal of the TO-FROM indicator.

**N-0165.** Which situation would result in reverse sensing of a VOR receiver?

(1) Flying a heading that is reciprocal to the bearing selected on the OBS.
(2) Setting the OBS to a bearing that is 90° from the bearing on which the aircraft is located.
(3) Failing to change the OBS from the selected inbound course to the outbound course after passing the station.

**N-0166.** To track outbound on the 180 radial of a VOR station, the recommended procedure is to set the OBS to

(1) 360° and make heading corrections toward the CDI needle.
(2) 180° and make heading corrections away from the CDI needle.
(3) 180° and make heading corrections toward the CDI needle.

**N-0167.** To track inbound on the 215 radial of a VOR station, the recommended procedure is to set the OBS to

(1) 215° and make heading corrections toward the CDI needle.
(2) 215° and make heading corrections away from the CDI needle.
(3) 035° and make heading corrections toward the CDI needle.

**N-0168.** With a VOR/ILS receiver set to a VOR frequency, how many degrees does full deflection of a CDI to one side represent?

(1) 5°.
(2) 10°.
(3) 20°.

**N-0169.** An aircraft 60 miles from a VOR station has a CDI indication one-fifth deflection, this represents a course centerline deviation of approximately

(1) 6 miles.
(2) 2 miles.
(3) 1 mile.

**N-0170.** Which airplane(s) correspond(s) to the VOR indicator V?

(see Figure 23)

(1) Airplane 2 only.
(2) Airplane 6 only.
(3) Airplanes 5 and 8.

**N-0171.** Which airplane(s) correspond(s) to the VOR indicator X?

(see Figure 23)

(1) Airplanes 1 and 3.
(2) Airplanes 3 and 7.
(3) Airplane 7 only.

**N-0172.** Which airplane(s) correspond(s) to the VOR indicator U?

(see Figure 23)

(1) Airplanes 1 and 2.
(2) Airplane 2 only.
(3) Airplane 6 only.

**N-0173.** Which presentation of a VOR indicator corresponds to airplanes 8?

(see Figure 23)

(1) T.
(2) V.
(3) W.

**N-0174.** Which presentation of a VOR indicator corresponds to airplanes 5 and 7?

(see Figure 23)

(1) T and X.
(2) V and X.
(3) W and Z.

**N-0175.** Which of the following statements, regarding a DME operation, is correct?

(1) When flying directly above the DME facility, the pilot reads on the DME indicator in the cockpit a zero distance.
(2) If we move the DME switch in the cockpit to HOLD, all readings are reset to zero.
(3) The frequency of a DME receiver in the aircraft is being adjusted automatically when we set a VOR or ILS frequency.

**N-0176.** Which distance is displayed by a DME indicator?

(1) Slant-range distance in statute miles.
(2) Slant-range distance in nautical miles.
(3) The distance from the aircraft to a point at the same altitude directly above the DME ground facility.

**N-0177.** What is the DME reading if an aircraft is directly over a VOR/DME station at the altitude of 6,000 ft AGL?

(1) 0.
(2) 1.
(3) 1,3.

**N-0178.** The slant-range error of a DME is greatest at

(1) low altitudes directly over the facility.
(2) high altitudes directly over the facility.
(3) high altitudes and high range from the facility.

**N-0179.** When using a DME one must take into account that the device shows

(1) the aircraft's ground speed.
(2) the closing rate of the aircraft relative to the DME ground facility.
(3) the slant-range between the aircraft and the DME ground facility.
(4) both answers 2 and 3 are correct.

**N-0180.** If a pilot moves the DME switch to HOLD

(1) the DME stays tuned to the present station if a pilot selects another VOR or ILS.
(2) the present DME reading get "frozen" until a new frequency of a VOR or ILS is selected.
(3) all DME indications reset to zero.

**N-0181.** Directions of airways on the Jeppesen radionavigational chart in Appendix are

(see Figure 16)

(1) true directions.
(2) magnetic directions.
(3) loksodromic directions.
(4) compass directions.

**N-0182.** What is a direct distance between DOL VOR and the intersection PODET on the airway B5?

(see Figure 16)

(1) 34 NM.
(2) 34 km.
(3) 50 NM.
(4) 69 NM.

**N-0183.** What is the shortest route distance between ILB VOR and the intersection ISTRI south of KFT VOR?

(see Figure 16)

(1) 45 NM.
(2) 45 km.
(3) 57 NM.
(4) 69 NM.

**N-0184.** What is the meaning of the number 6000 below the name of the airway B5 on the route segment ZAG VOR-KFT VOR?

(see Figure 16)

(1) MEA.
(2) Transition altitude.
(3) MORA.
(4) MSA.

**N-0185.** If the atmospheric pressure QNH is 1030 hPa, what is the lowest fligh level that could be planned for an IFR flight on the route segment VOR GRZ-VOR ILB?

(see Figure 16)

(1) FL80.
(2) FL85.
(3) FL90.
(4) FL95.

**N-0186.** MEA on the route segment VOR DOL-VOR GRZ is

(see Figure 16)

(1) 9.000 ft.
(2) 9.000 m.
(3) FL160.
(4) 8.000 ft.

**N-0187.** MORA on the route segment NDB MEL-VOR ZAG is

(see Figure 16)

(1) 5,000 ft.
(2) 8,000 ft.
(3) 4,400 ft.
(4) Maximum 8,000 ft; minimum 5,000 ft.

**N-0188.** On the route segment ARLON-RADLY of A15 airway, the mark 9000a stands for

(see Figure 16)

(1) MSA.
(2) MEA.
(3) MORA.

**N-0189.** The MEA on the route segment VOR ZAG-PODET of B5 airway is

(see Figure 16)

(1) Not specified.
(2) 7,200 ft MSL.
(3) 6,000 ft MSL.
(4) 7,200 ft AGL.

**N-0190.** What is the meaning of the frequency 127.8 in the oval window, found on the radionavigational chart near Rijeka airport and approximately 45 NM east of NDB KO?

(see Figure 16)

(1) Radar Zagreb.
(2) Terminal Control Zagreb.
(3) ATIS Zagreb.
(4) VOLMET Zagreb.

**N-0191.** When flying in the vicinity of Klagenfurt airport, a pilot will normally obtain a meteo data for the surrounding airports by

(see Figure 16)

(1) listening to the voice transmittion of the VOR KFT.
(2) questioning Klagenfurt Tower.
(3) questioning the radar.
(4) listening to the VOLMET broadcast at frequency 122.27 MHz.

**N-0192.** When flying in the vicinity of island Cres, a pilot will normally obtain a meteo data by (see Figure 16)

(1) listening on the frequency 127.8 MHz.
(2) calling Control/Radar Zagreb on the frequency 124.8 MHz or 129.65 MHz.
(3) calling Rijeka Tower or Pulj Tower.

**N-0193.** Waypoints data in a GPS database (with the exception of users waypoints) could be updated by

(1) a respective software house only.
(2) a pilot, however when in-flight only.
(3) a pilot on ground only, when the device is stationary.

**N-0194.** A CDI deviation needle on the GPS electronic screen in the cockpit shows a deviation from the desired track in

(1) arc degrees.
(2) arc degrees or distance units, depends on pilot's discretion.
(3) distance units.

**N-0195.** Similarly to a VOR, the accuracy of a GPS in great extend depends on the distance to the point selected.

(1) True.
(2) False.

**N-0196.** A GPS leads an aircraft on route along

(1) great circle.
(2) passive curve.
(3) heading line.
(4) rhumb line.

**N-0197.** Which directions are normally selected when setting a GPS?

(1) True directions.
(2) Compass directions.
(3) Magnetic directions.

**N-0198.** A GPS signal reception in great extend depends on the aircraft's altitude. This statement is

(1) true.
(2) false.

**N-0199.** When working with a GPS one must know that

(1) it is necessary to type in manually geographic coordinates of the aircraft's parking position.
(2) the device automatically determines the aircraft's present position in geographic coordinates.
(3) the device is able to determine navigational parameters relative only to those fixes, which are in a theoretical sight of view.

**N-0200.** Which map datum should be selected at GPS initialization?

(1) EUROPE.
(2) NAD83.
(3) WGS84.

**N-0201.** Which velocity is measured in principle by every GPS instrument?

(1) True Air Speed.
(2) Ground Speed.
(3) Vertical Speed.
(4) Wind Speed.

**N-0202.** A GPS signal may be interrupted when transmitting on VHF frequencies

(1) 121.15 MHz, 121.17 MHz in 121.20 MHz.
(2) 131.25 MHz in 131.30 MHz.
(3) Both answers are correct.

**N-0203.** In a RNAV mode, the lateral deflection of the CDI indicates

(1) degrees left or right of course.
(2) statute miles left or right of course.
(3) nautical miles left or right of course.

## METEOROLOGY (M)

**M-0001.** What is the Temperature Laps Rate in International Standard Atmosphere (ICAO)?

(1) 1.00°C/100 m.
(2) 0.65°C/100 m or 2°C/1,000 ft.
(3) 0.80°C/100 m.
(4) 0.50°C/100 m.

**M-0002.** What air temperature may we expect at 7,000 ft if the air temperature at 1,500 ft is 15°C?

(1) +4°C.
(2) +3°C.
(3) 0°C.
(4) -2°C.

**M-0003.** What wind represents depicted symbol from meteorological charts?

(see Figure 11)

(1) North wind at 60 knots.
(2) West wind at 60 knots.
(3) South wind at 15 knots.
(4) East wind at 15 knots.

**M-0004.** Every physical process of weather is accompanied by, or is the result of, a

(1) heat exchange.
(2) pressure differential.
(3) movement of air.

**M-0005.** What causes variations in altimeter settings between weather reporting points?

(1) Unequal heating of the Earth's surface.
(2) Variation of terrain elevation.
(3) Coriolis force.

**M-0006.** What are the standard temperature and pressure values for the sea level?

(1) 15°C and 1013.2 hPa.
(2) 0°C and 1013.2 hPa.
(3) 0°C and 760 hPa.

**M-0007.** What weather phenomena is associated with a temperature inversion?

(1) A stable layer of air.
(2) An unstable layer of air.
(3) Ascending winds on mountain slopes.
(4) Thunderstorms inside air masses.

M-0008. A temperature inversion would most likely result in which weather condition?

(1) Clouds with extensive vertical development above an inversion aloft.
(2) Good visibility in the lower levels of the atmosphere and poor visibility above an inversion aloft.
(3) An increase in temperature as altitude is increased.

M-0009. The most frequent type of ground or surface-based temperature inversion is that which is produced by

(1) terrestrial radiation on a clear, relatively still night.
(2) the movement of colder air under warm air, or the movement of warm air over cold air.
(3) warm air being lifted rapidly aloft in the vicinity of mountainous terrain.

M-0010. What are the processes by which moisture is added to unsaturated air?

(1) Heating and condensation.
(2) Evaporation and sublimation.
(3) Supersaturation and evaporation.

M-0011. Clouds, fog, or dew will always form when

(1) water vapor is present.
(2) relative humidity reaches 100 percent.
(3) water vapor condenses.

M-0012. If the temperature/dewpoint spread is small and decreasing, and the temperature is 17°C, what type weather is most likely to develop?

(1) Freezing precipitation.
(2) Thunderstorms.
(3) Fog or low clouds.

M-0013. The amount of water vapor which air can hold depends on the

(1) stability of the air.
(2) air temperature.
(3) dewpoint.

M-0014. What is meant by the term "dewpoint"?

(1) The temperature at which dew will always form.
(2) The temperature to which air must be cooled to become saturated.
(3) The temperature at which condensation and evaporation are equal.

M-0015. What is the approximate airfield dewpoint if the surface air temperature is 20 °C and the reported base of the cumulus clouds is 1,100m above the airfield level?

(1) -3°C.
(2) 5°C.
(3) 7°C.
(4) 11°C.

M-0016. What measurement can be used to determine the stability of the atmosphere?

(1) Actual lapse rate.
(2) Surface temperature.
(3) Atmospheric pressure.

M-0017. What are the characteristics of an unstable air mass?

(1) Turbulence and good surface visibility.
(2) Turbulence and poor surface visibility.
(3) Nimbostratus clouds and good surface visibility.

M-0018. What type of cloud indicates an unstable air mass?

(1) CU.
(2) CS.
(3) ST.

M-0019. The boundary between two different air masses is referred to as a

(1) front.
(2) frontolysis.
(3) frontogenesis.

M-0020. What types clouds usually accompany the passage of a warm front?

(1) CI, CC, NS, CB.
(2) CC, AC, CU, CB.
(3) CI, CS, AS, NS.
(4) CC, SC, ST, NS.

M-0021. Which weather conditions should be expected beneath a low-level temperature inversion layer when the relative humidity is high?

(1) Light windshear, poor visibility, haze, and light rain.
(2) Smooth air, poor visibility, fog, haze, or low clouds.
(3) Turbulent air, poor visibility, fog, low stratus type clouds, and showery precipitation.

M-0022. What value is being calculated by following formula?

temperature minus dewpoint times 123 = ..... ?

(1) Relative humidity.
(2) Temperature aloft.
(3) Tops of stratus clouds in meters.
(4) Ceiling of cumulus clouds in meters.

M-0023. What is the approximate base of cumulus clouds if the surface air temperature is 27°C and the dewpoint is 15°C?

(1) 1.000 m.
(2) 1.500 m.
(3) 2.000 m.
(4) 2.700 m.

M-0024. What approximate base of cumulus clouds should be expected if the surface air dewpoint is 5°C and the forcasted daily maximum temperature is 25°C?

(1) 2,800 m.
(2) 2,500 m.
(3) 2,000 m.
(4) 1,500 m.

M-0025. The conditions necessary for the formation of cumulonimbus clouds are a lifting action and

(1) unstable air containing an excess of condensation nuclei.
(2) either stable or unstable air.
(3) unstable, moist air.

M-0026. With what type of clouds are shower precipitations associated?

(1) CB.
(2) ST.
(3) CI.
(4) CU.

M-0027. Crests of standing mountain waves may be marked by stationary, lens-shaped clouds known as

(1) mammatocumulus clouds.
(2) standing lenticular clouds.
(3) roll clouds
(4) rotor clouds.

M-0028. Possible mountain wave turbulence could be anticipated when winds of 40 knots or greater blow

(1) across a mountain ridge, and the air is stable.
(2) down a mountain valley, and the air is unstable.
(3) parallel to a mountain peak, and the air is stable.

M-0029. What cloud types would indicate convective turbulence?

(1) Towering cumulus clouds.
(2) Cirrus clouds.
(3) Nimbostratus clouds.

M-0030. Thunderstorms reach their greatest intensity during the

(1) mature stage.
(2) downdraft stage.
(3) cumulus stage.

M-0031. Thunderstorms which generally produce the most intense hazard to aircraft are

(1) squall line thunderstorms.
(2) warm front thunderstorms.
(3) steady-state thunderstorms.

M-0032. A nonfrontal, narrow band of active thunderstorms that often develop ahead of a cold front is known as a

(1) squall line.
(2) dry line.
(3) prefrontal system.

M-0033. What feature is normally associated with the cumulus stage of a thunderstorm?

(1) Frequent lightning.
(2) Roll cloud.
(3) Continuous updraft.

M-0034. What are the minimum requirements for the formation of a thunderstorm?

(1) Sufficient moisture and a lifting action.
(2) Sufficient moisture, an unstable lapse rate, and a lifting action.
(3) Towering cumulus clouds, sufficient moisture, and a frontal zone.

M-0035. What weather phenomenon is always associated with a thunderstorm?

(1) Heavy rain.
(2) Hail.
(3) Lightning.

M-0036. Which weather phenomenon signals the beginning of the mature stage of a thunderstorm?

(1) Maximum growth rate of the clouds.
(2) Precipitation beginning to fall.
(3) The appearance of an anvil top.

M-0037. During the life cycle of a thunderstorm, which stage is characterized predominately by downdrafts?

(1) Cumulus.
(2) Mature.
(3) Dissipating.

M-0038. When may hazardous windshear be expected?

(1) When stable air crosses a mountain barrier where it tends to flow in layers forming lenticular clouds.
(2) Following frontal passage when stratocumulus clouds form indicating mechanical mixing.
(3) In areas of low-level temperature inversion, frontal zones, and clear air turbulence.

M-0039. A pilot can expect a windshear zone in a temperature inversion whenever the windspeed at 2,000 to 4,000 feet above the surface is at least

(1) 10 knots.
(2) 15 knots.
(3) 25 knots.

M-0040. If there is thunderstorm activity in the vicinity of an airport at which you plan to land, which hazardous atmospheric phenomenon might be expected on the landing approach?

(1) Windshear turbulence.
(2) Steady rain.
(3) Precipitation static.

M-0041. Where does windshear occur?

(1) At all altitudes, in all directions.
(2) Only at lower altitudes.
(3) Only at higher altitudes.

M-0042. Why is frost considered hazardous to flight?

(1) Frost slows the airflow over the airfoils, thereby increasing control effectiveness.
(2) Frost spoils the smooth flow of air over the wings, thereby decreasing lifting capability.
(3) Frost changes the basic aerodynamic shape of the airfoils, thereby decreasing lift.

M-0043. One in-flight condition necessary for structural icing to form is

(1) visible moisture.
(2) small temperature/dewpoint spread.
(3) stratiform clouds.

M-0044. In which environment is aircraft structural ice most likely to have the highest accumulation rate?

(1) Freezing drizzle.
(2) Freezing rain.
(3) Cumulus clouds with below freezing temperatures.

M-0045. In which situation is advection fog most likely to form?

(1) A warm, moist air mass on the windward side of mountains.
(2) An air mass moving inland from the coast in winter.
(3) A light breeze blowing colder air out to sea.

M-0046. What types of fog depend upon wind in order to exist?

(1) Radiation fog and ice fog.
(2) Advection fog and upslope fog.
(3) Steam fog and ground fog.

M-0047. Low-level turbulence can occur and icing can become hazardous in which type of fog?

(1) Upslope fog.
(2) Steam fog.
(3) Rain-induced fog.

M-0048. What situation is most conducive to the formation of radiation fog?

(1) The movement of cold air over much warmer water.
(2) Moist, tropical air moving over cold, offshore water.
(3) Warm, moist air over low, flatland areas on clear, calm nights.

M-0049. What situation is most conductive to the formation of radiation fog?

(1) Warm, moist air over low, flatland areas of clear, calm nights.
(2) Moist, tropical air moving over cold, offshore water.
(3) The movement of cold air over much warmer water.
(4) Light wind moving warm, moist air upslope during the night.

**M-0050.** What percent coverage of the lowest cloud layer was observed accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) 8/8.
(2) 5/8 to 7/8.
(3) 1/8 to 2/8.
(4) Less than 1/8.

**M-0051.** What was the observed temperature accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) Between 10°C and 18°C.
(2) 17°C.
(3) 16°C.
(4) Between 16°C and 17°C.

**M-0052.** What was the observed air pressure accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) 1018 hPa (QFE).
(2) 1000 hPa (QNH).
(3) 999 hPa (QFE).
(4) 1018 hPa (QNH).

**M-0053.** At what time was following METAR report issued?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) By 16:30 local time.
(2) By 16:00 UTC, 30th day of the running month.
(3) By 16:30 UTC, 13th day of the running month.
(4) By 24:00 local time, 8th day of the running month.

**M-0054.** What was the wind accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) Southwesterly variable direction.
(2) Westerly 16 kts to 30 kts.
(3) Southwesterly 8 km/h.
(4) Southwesterly 8 kts.

**M-0055.** What was the visibility accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) Between 5 km and 10 km.
(2) 600 m.
(3) More than 10 km.
(4) 600 ft.

**M-0056.** What type of precipitations was observed accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) Rain showers.
(2) Steady and light rain.
(3) Hail.
(4) Light drizzle.

**M-0057.** What was the ceiling of the lowest cloud layer accordingly to the following METAR report?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010
OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) 300 m.
(2) 10 ft.
(3) 100 ft.
(4) 1,000 m.

**M-0058.** The airport meteorological observation station has recorded the following subsequent weather development:

180450Z 23015KT 3000 +RA BR FEW008 SCT020 OVC030 13/12 Q1010 NOSIG=
180650Z 25008KT 6000 SCT040 BRK090 18/14 Q1014 RERA NOSIG=
180850Z 25006KT 8000 SCT040 SCT100 19/15 Q1009 NOSIG=
181050Z 24008 KT 9999 SCT040 SCT100 21/15 Q1008 NOSIG=
181250Z 23012KT CAVOK 23/16 Q1005 NOSIG=
181450Z 23016 KT 9999 SCT040 BKN090 24/17 Q1003 BECMG 24020G40KT TS=
181650Z 24018G35KT 3000 +TSRA BR FEW006 BKN015CB 18/16 Q1002 NOSIG=
181850Z 28012KT 9999 SCT030 SCT100 13/11 Q1005 NOSIG=

What can we conclude?

(1) Early in the morning the station was passed by a warm front and by a cold front during the afternoon.
(2) Early in the morning the station was passed by a cold front and by a warm front during the afternoon.
(3) Local thunderstorms appeared.

**M-0059.** The airport meteorological observation station has recorded the following subsequent weather development:

040650Z 19002KT 3000 BR SCT280 08/07 Q1019 BECMG 5000=
040850Z 21004KT 8000 OVC280 10/07 Q1019 NOSIG=
041050Z 22007KT CAVOK 14/06 Q1017 NOSIG=
041250Z 22012KT 9999 SCT040 SCT100 OVC250 18/17 Q1016 NOSIG=
041450Z 22015KT 9999 SCT040 OVC080 17/06 Q1014 NOSIG=
041650Z 23014KT 8000 -RA SCT030 OVC070 16/10 Q1013 TEMPO 3000=
041850Z 24018KT 4000 +RA BR FEW010 BKN020 19/13 Q1012 NOSIG=
042050Z 26009KT 8000 SCT030 BKN080 19/13 Q1012 RERA NOSIG=

What can we conclude?

(1) In the morning the station was passed by a cold and during the afternoon by a new cold front.
(2) It was a north air passage that day.
(3) The station was passed by a warm front.
(4) In the morning the station was passed by a warm front and by a cold front at the end of the day.

**M-0060.** Accordingly to the code which of the following METAR reports cold be partially abbreviated by CAVOK (minimum sector altitude 4.000 ft)?

a) 34004KT 7000 MIFG SCT260 09/08 Q1019 NOSIG=
b) 27019G37KT 9999 BKN050 18/14 Q1016 NOSIG=
c) 00000KT 0100 FG VV001 11/11 Q1025 BECMG 0500=
d) 26012KT 8000 -SHRA BKN025TCU 16/12 Q1018 NOSIG=

(1) a.
(2) b.
(3) c.
(4) d.
(5) None of the above.

**M-0061.** Accordingly to the following METAR report, when may we expect the visibility to improve to maximum value of 800 m?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010 OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) Between 17:00 UTC and 18:00 UTC.
(2) After 17:00 UTC.
(3) Till 17:00 UTC.
(4) After 18:00 UTC.

**M-0062.** Accordingly to the following METAR report, when may we expect vanishing of the fog an weather improvement for VFR flight?

METAR LSZH 131630Z 24008KT 0600 R16/1000U FG DZ FEW003 SCT010 OVC020 17/16 Q1018 BECMG TL1700 0800 FG BECMG AT1800 9999 NSW=

(1) Between 17:00 and 18:00 UTC.
(2) Till 17:00 UTC.
(3) Till 18:00 UTC (the latest).
(4) After 18:00 UTC.

**M-0063.** When was the following TAF report issued?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) By 06:00 UTC, 24th day of the running month.
(2) By 06:00 local time, 24th day of the running month.
(3) By 16:00 UTC, 24th day of the running year.
(4) At midnight UTC, 16th day of the running month.

**M-0064.** For what time period was the following weather forecast issued?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) For 24th day of the running month.
(2) For the period between 06:00 in 24:00 local time, 16th day of the running month.
(3) For the period between 06:00 in 24:00 UTC, 16th day of the running month.
(4) For the entire 16th day of the running month.

**M-0065.** What dangerous weather feature is forcasted between 06:00 and 08:00 UTC?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) Orcanic rain.
(2) Freezing rain.
(3) Cumulonimbus clouds.
(4) Hail.

**M-0066.** What type of weather can be expected after 12:00 UTC?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) Southeasterly wind with drafts all the time with possible moderate showers from cumulonimbus however visibility will be more than 10 km.
(2) Temporarily southeasterly wind with drafts up to 22 km/h and cumulonimbus clouds, sky overcasted with ceiling at 2000 m, visibility will stay convenient for visual flying.
(3) No dangerous meteorogical features or precipitations however and with the visibility not sufficient for visual flying.
(4) Temporarily southeasterly wind with drafts up to 22 km/h with reduced visibility not sufficient for visual flying and possibility of moderate showers from cumulonimbus.

**M-0067.** When can we most likely expect that the weather conditions will not be convenient for VFR flying?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) Between 08:00 UTC and 12:00 UTC.
(2) Till 08:00 UTC.
(3) After 12:00 UTC.
(4) All the period of validity of the meteo forecast.

**M-0068.** What kind of weather is forecast for the period after 12:00 UTC?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) Rainy weather with showers and gusty wind and visibility below 10 km.
(2) Moderate southeasterly wind with visibility improvement to more than 10 km, precipitations will stop, cloudiness will become greater with ceiling at 600 m.
(3) Visibility will improve to 5 km to 10 km and cloud covering will decrease to 1/8 at 600 m and 1/8 at 3000 m.
(4) Southeasterly wind 6 kts, visibility will be convenient for visual flying and the sky will be completely covered with clouds with base at 600 m.

**M-0069.** When can we expect the weather conditions convenient for visual flying?

TAF EDDM 160000Z 160624 13010KT 9000 BKN020 BECMG 0608 SCT015CB BKN020 TEMPO 0812 17012G22KT 1000 TSRA SCT010CB BKN020 FM12 15006KT 9999 BKN020 BKN100=

(1) All the time of validity of weather forecast.
(2) After 12:00 UTC only.
(3) Between 08:00 UTC and 12:00 UTC only.
(4) Between 06:00 UTC and 08:00 UTC and after 12:00 UTC.

M-0070. Which of the following METAR reports shows the greatest possibility of raining?

a) 34004KT 9999 SCT040 SCT100 M05/MO8 Q1014 NOSIG=
b) 23015KT 8000 BKN030 OVC070 17/14 Q1009 BECMG 4000=
c) 16002KT 0100 FG SCT300 6/6 Q1022 BECMG 1000=
d) 05016G33KT 8000 OVC015 08/06 Q1028 NOSIG=

(1) a.
(2) b.
(3) c.
(4) d.

M-0071. Which of the following METAR reports shows the greatest possibility of fog?

a) 151850Z 21003KT 8000 SCT250 12/M08 Q1028 NOSIG=
b) 151850Z 06018G30KT 5000 BR OVC010 04/01 Q1024 NOSIG=
c) 151850Z 15003KT 6000 SCT120 05/04 Q1032 BECMG 1600=
d) 151850Z 25010KT 4000 BR BKN012 OVC030 12/10 Q1006 TEMPO 1500=

(1) a.
(2) b.
(3) c.
(4) d.

M-0072. During a summer day the airport meteorological observation station has recorded the following subsequent weather development:

260450Z 24009KT 7000 SCT040 SCT120 15/12 Q1024 NOSIG=
260650Z 24010KT 6000 SCT040 SCT120 17/13 Q1014 NOSIG=
260850Z 23014KT 8000 BKN100 19/13 Q1009 BECMG 26020G35KT TS=
261050Z 28022G33KT 4000 TS SCT015 SCT050CB OVC080 16/14 Q1006 BECMG NSW=
261250Z 31016 KT 9999 SCT025 BKN030 13/09 Q1009 NOSIG=
261450Z 30012KT 9999 -SHRA OVC020 14/10 Q1011 NOSIG=
261650Z 30009 9999 SCT025TCU SCT035 13/10 Q1013 RERA NOSIG=
261850Z 28006KT 9999 FEW040 11/09 Q1014 NOSIG=
262050Z 26004KT CAVOK 10/08 Q1015 NOSIG=

From the meteorogical observations above we can conclude that in the morning the station was passed by

(1) a warm front and by a cold front during the afternoon.
(2) a cold front and by a warm front during the afternoon.
(3) a cold front and that a weather of warm sector was prevailing during the afternoon.
(4) a cold front and that a postfrontal weather was prevailing during the afternoon.

## AIR LAW (Z)

**Z-0001.** What is the minimum age for a student pilot for solo flying an airplane?

(1) 14.
(2) 15.
(3) 16.
(4) 17.

**Z-0002.** An applicant for a Private Pilot Licence must be at least

(1) 15 years old.
(2) 16 years old.
(3) 17 years old.
(4) 18 years old.

**Z-0003.** When should the student pilot present his Pilot Medical Certificate?

(1) Before the beginning of theoretical lessons.
(2) Before the beginning of a practical training.
(3) Before his first solo flight.
(4) At giving in the exam's application.

**Z-0004.** What Medical Certificate is required for a holder of a Private Pilot Licence?

(1) Class 1 Medical Certificate.
(2) Class 1 or Class 2 Medical Certificate.

**Z-0005.** What Medical Certificate is required for a student pilot?

(1) Class 1 Medical Certificate.
(2) Class 1 or Class 2 Medical Certificate.

**Z-0006.** At least how many hours of dual instructions on aeroplane must have an applicant for a PPL(A)?

(1) 10 hours.
(2) 15 hours.
(3) 20 hours.
(4) 25 hours.

**Z-0007.** How many hours of total flying hours, required for the practical skill test for an issue of a Private Pilot Licence, may be completed on a Flight & Navigation Procedures Trainer or Simulator?

(1) 5.
(2) 7.
(3) 10.
(4) 15.

**Z-0008.** At least how long must be the cross-country flight, required for the eligibility for the Private Pilot Licence skill test, and how many full stop landings at different aerodromes shall be made at this flight?

(1) 100 NM; 2 landings.
(2) 150 NM; 2 landings.
(3) 200 NM; 3 landings.
(4) 250 NM; 3 landings.

**Z-0009.** At least how many hours of flying experience as a pilot of airplanes must have an applicant for a Private Pilot Licence?

(1) 50 hours.
(2) 45 hours.
(3) 40 hours.
(4) 35 hours.

**Z-0010.** To meet the experience requirements for issue of a PPL(A) an applicant who holds a pilot licence or equivalent privileges for helicopters, microlights having fixed wings and moveable aerodynamic flight controls surfaces acting in all three dimensions, gliders, self-sustaining gliders or self-launching gliders, may be credited with

(1) 5% of his/her total flight flight time as a pilot-in-command in such aircraft up to a maximum of 10 hours towards PPL(A).
(2) 15 hours of his/her total flight flight time as a pilot-in-command in such aircraft.
(3) 5 hours of his/her total flight flight time as a pilot-in-command in such aircraft.
(4) 10% of his/her total flight flight time as a pilot-in-command in such aircraft up to a maximum of 10 hours towards PPL(A).

**Z-0011.** What is the maximum amount of total flying hours required for an applicant for a PPL(A) which may have been completed in a FNPT or a flight simulator?

(1) 5 hours.
(2) 7 hours.
(3) 10 hours.
(4) 15 hours.

**Z-0012.** What does the term "solo flight time" mean?

(1) Entire flight time when a pilot is alone in the aircraft.
(2) Entire flight time, when a pilot is alone in the aircraft, and 50% of the co-pilot flight time.
(3) Flight time as a pilot-in-command.
(4) Solo flight time of a student-pilot.

**Z-0013.** To act as pilot in command of an airplane carrying passengers, the holder of PPL(A) must have made at least three takeoffs and three landings in an airplane of the same class, and if a type rating is required, of the same type, within the preceding

(1) 90 days.
(2) 12 calendar months.
(3) 24 calendar months.

Z-0014. The three takeoffs and landings during the last 90 days that are required to act as pilot of an airplane carrying passengers at night must be done during the time period from

(1) sunset to sunrise.
(2) 1 hour after sunset to 1 hour before sunrise.
(3) the end of evening civil twilight to the beginning of morning civil twilight.

Z-0015. The Flight Time is the total time from the moment

(1) than an aicraft first moves under its own or external power for the purpose of takingoff until the moment it comes to rest at the end of the flight.
(2) than an aircraft starts its engine(s) for the purpose of takingoff or when a non-powered aircraft first moves, until the moment engine(s) stop(s) operating or when a non-powered aircraft comes to rest at the end of the flight.
(3) than an aicraft becomes completely airborne until the moment it finally touches the ground at landing.

Z-0016. Flight time during which the flight instructor will only observe the student acting as pilot-in-command and shall not influence or control the flight of the aircraft is

(1) solo flight time under supervision.
(2) flight time as student pilot-in-command (SPIC).
(3) flight time as pilot-in-command.
(4) solo flight time.

Z-0017. Which aircraft, and under which conditions, may a holder of a private pilot licence fly, provided he is properly endorsed?

(1) All airplanes without exceptions, provided no payment or refund is done for such flight.
(2) All airplanes without exceptions, provided no payment or refund is given to the pilot.
(3) All single-engined airplanes, provided no payment or refund is done for such flight.
(4) All airplanes up to the maximum takeoff mass 1,500 kg, provided no payment or refund is given to the pilot.

Z-0018. As a substitute for the proficiency check with an examiner, what minimum flight time and what number of takeoffs and landing is required for the revalidation of a single pilot single engine airplane class rating?

(1) 12 hours of flight time within 12 months preceding the expiry of the rating, including 6 hours of pilot-in-command time, and 12 takeoffs and 12 landings.
(2) 12 hours of flight time within 12 months preceding the expiry of the rating, including 5 hours of pilot-in-command time, and 3 takeoffs and 3 landings.
(3) 10 hours of flight time within 12 months preceding the expiry of the rating, including 6 hours of pilot-in-command time, and 12 takeoffs and 12 landings.

Z-0019. How long is the period before the expiry date of a single pilot single engine rating, during which a proficiency check for a revalidation may be done?

(1) 15 days.
(2) 1 month.
(3) 2 months.
(4) 3 months.

**Z-0020.** What may be a substitute for the training flight at least 1 hour with a flight instructor, which is beside others conditions requested for revalidation of a single pilot single engine class rating?

(1) Completed annual Flight Safety Course.
(2) Minimum 5 hours of night flying.
(3) A proficiency check or skill test for a class rating within 12 months preceding the expiry of the rating.

**Z-0021.** To act as pilot-in-command of an aircraft carrying passengers, the private licence holder must have three takeoffs and landings within the preceding 90 days as the sole manipulator of the controls in an airplane the same

(1) make and model.
(2) class, but not the type.
(3) type or class.

**Z-0022.** With the respect to the certification of airmen, which is a class of aircraft?

(1) Airplane, rotorcraft, glider, lighter-than-air.
(2) Single engine land and sea, multiengine land and sea.
(3) Lighter-than-air, airship, hot air balloon, gas balloon.

**Z-0023.** With the respect to the certification of airmen, which is a category of aircraft?

(1) Gyroplane, helicopter, airship, free balloon.
(2) Airplane, rotorcraft, glider, lighter-than-air.
(3) Single engine land and sea, multiengine land and sea.

**Z-0024.** The pilot or student pilot, when becoming aware of hospital admission of more than 12 hours, surgical operation or invasive procedure, the regular use of medication, the regular use of correcting lenses,

(1) must pass the aviation medical exam again.
(2) must not fly until seeks the advice of the competent aviation doctor.
(3) must inform the CAA within the period of 21 days.

**Z-0025.** In which of the following cases should the aviation medical certificate deem to be suspended?

(1) Any surgical operation or invasive procedure and pregnancy.
(2) Any surgical operation or invasive procedure.
(3) Any illness involving incapacity to his functions as a member of flight crew throughout a period of 21 days or more, or any significant personal injury involving incapacity to undertake his functions as a member of the flight crew.

**Z-0026.** How long are single pilot single engine class ratings valid?

(1) 6 months.
(2) 1 year.
(3) 2 years.
(4) 3 years.

**Z-0027.** Maximum validity of the pilot licence is

(1) 2 years.
(2) 3 years.
(3) 4 years.
(4) 5 years.

**Z-0028.** The validity of a pilot licence is determined by the validity of

(1) the Medical Certificate only.
(2) the licence itself, as endorsed in the licence.
(3) the ratings contained therein and the Medical Certificate.

**Z-0029.** Which preflight action is specifically required of the pilot prior to each flight?

(1) Check the aircraft logbooks for appropriate entries.
(2) Become familiar with all available information concerning the flight.
(3) Review wake turbulence avoidance procedures.

**Z-0030.** Preflight action, as required for all flights away from the vicinity of an airport, shall include

(1) the designation of an alternate airport.
(2) a study of arrival procedures at airports/heliports of intended use.
(3) an alternate course of action if the flight cannot be completed as planned.

**Z-0031.** In addition to other preflight actions for a VFR flight away from the vicinity of the departure airport, regulations specifically require the pilot in command to

(1) review traffic control light signal procedures.
(2) check the accuracy of the navigational equipment and the emergency locator transmitter (ELT).
(3) determine runway lengths at airports of intended use and the aircraft's takeoff and landing distance data.

**Z-0032.** Pilots are required to keep their safety belts and shoulder harnesses fastened during

(1) takeoffs and landings.
(2) all flight conditions.
(3) flight in turbulent air.

**Z-0033.** Which best describes the flight conditions under which pilots are specifically required to keep their safety harness fastened?

(1) Safety belts during take off and landing; shoulder harnesses during takeoff and landing.
(2) Safety belts during take off and landing; shoulder harnesses during takeoff and landing and while en route.
(3) Safety belts during take off and landing and while en route; shoulder harnesses during takeoff and landing.

Z-0034. With respect to passengers, what obligation, if any, does a pilot in command have concerning the use of seat belts?

(1) The pilot in command must instruct the passengers to keep their seat belts fastened for the entire flight.
(2) The pilot in command must brief the passengers with the location and the use of seat belts.
(3) The pilot in command has no obligation in regard to passengers' use of seat belts.

Z-0035. Who is responsible for determining if an aircraft is in condition for safe flight?

(1) A certified aircraft mechanic.
(2) The pilot in command.
(3) The owner or operator.

Z-0036. The person directly responsible for the prelaunch briefing of passengers for a flight is

(1) safety officer.
(2) pilot in command.
(3) ground crewmember.

Z-0037. What does "AAL" mean?

(1) Above aerodrome level.
(2) Angle of attack limitation.
(3) Acknowledge.
(4) Aerodrome altitude level.

Z-0038. Which aircraft speed should be entered into the "Cruising Speed" block of an ICAO Flight Plan?

(1) Calibrated Air Speed.
(2) Indicated Air Speed.
(3) True Air Speed.
(4) Ground Speed.

Z-0039. What should be entered into the "LEVEL" block of an ICAO VFR Flight Plan?

(1) it is left blank for VFR flights.
(2) the proposed cruising altitudes.
(3) either the word "VFR" or the proposed cruising altitude.
(4) the phrase "VFR: variable".

Z-0040. What is the meaning of "WIP"?

(1) With permission.
(2) With effect from.
(3) Work in progress.
(4) Weight increase procedure.

**Z-0041.** An aircraft is in controlled airspace under ATC control. The responsibility for ensuring adequate terrain clearance rests with:

(1) the aircraft commander.
(2) ATC only.
(3) Ministry of Transport of the Republic of Slovenia.
(4) ATC and the aircraft commander.

**Z-0042.** The Air Traffic Control may issue a permission for a SVFR flight

(1) for all flights in the restricted zone.
(2) for flights overflying of the terminal zone.
(3) for flights entering or leaving the control zone only.
(4) for flying an airport traffic circuit inside the control zone only.

**Z-0043.** The vertical limits of a control zone are

(1) from 600 m GND to the bottom limit of a terminal area.
(2) from the surface to the defined altitude.
(3) from 600 m GND to the defined altitude.
(4) from the surface to 900 m MSL.

**Z-0044.** What is the definition of a term "Control Zone"?

(1) An airspace immediately above an airport.
(2) An airspace of defined dimensions within which all air traffic is controlled.
(3) A controlled airspace extending upwards from the surface of the earth.

**Z-0045.** A part of an airspace of defined dimensions above defined area where flights are not allowed, is called

(1) prohibited zone.
(2) restricted zone.
(3) terminal area.
(4) control zone.

**Z-0046.** Flight through a restricted area should not be accomplished unless the pilot has

(1) filed an IFR flight plan.
(2) received prior authorization from the controlling agency.
(3) received prior permission from the commanding officer of the nearest military base.

**Z-0047.** What is the definition of the term "Controlled Airspace"?

(1) An airspace around an airport.
(2) An airspace of defined dimensions within which all aircrafts are controlled.
(3) An airspace immediately above an airport with more than one runway.
(4) An airspace within which air traffic control services are provided.

**Z-0048.** The controlled airspace, extending from the surface to the specified altitude, is the

(1) terminal control area.
(2) control zone.
(3) fligh information region.
(4) control area.

**Z-0049.** Who is responsible for the adequate safe separation between VFR flights in the air?

(1) The Air Traffic Control exclusivelly.
(2) Pilots themselves exclusivelly.
(3) The Air Traffic Control and the Surveillance Radar.
(4) The Air Traffic Control and pilots.

**Z-0050.** Which rules of the air apply to an aircraft registered in the Republic of Slovenia while flying outside the native aerospace?

(1) Rules of the air of the Republic of Slovenia.
(2) Rules of the air of the state being overflown.
(3) Rules of the air of the state producer of the aircraft.
(4) International regulations ICAO.

**Z-0051.** A controlled airspace extending upwards from a specified height above the earth is

(1) control area.
(2) aerodrome traffic zone.
(3) control zone.
(4) de-conflicted zone.

**Z-0052.** What is the lateral dimension of the airspace at the inner side of the state border, where all aircraft need to obtain special permission for flying within it?

(1) 5 km.
(2) 7 km.
(3) 9 km.
(4) 11 km.

**Z-0053.** When flying a sport aircraft above the territory of the Republic of Slovenia, supplemental oxygen shall be used at the altitude above mean sea level greater than

(1) 3,600 m.
(2) 3,800 m.
(3) 4,000 m.
(4) 4,200 m.

Z-0054. What is the minimum safe altitude required to operate an aircraft over settlements or over open-air assembly of people?

(1) An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.
(2) 150 m (500 ft) above ground and not closer than 150 m from any person, vessel or structure.
(3) 150 m (500 ft) above the highest obstacle within a horizontal radius of 300 m of the aircraft.
(4) 300 m (1,000 ft) above the highest obstacle within a horizontal radius of 600 m of the aircraft.

Z-0055. When flying visually in class G airspace at altitudes above 900 m (3,000 ft) MSL or 300 m (1,000 ft) from ground, whichever is higher, the pilot of an aircraft must maintain the vertical separation from clouds at least

(1) 100 m.
(2) 150 m.
(3) 250 m.
(4) 300 m.

Z-0056. Visual flying of aircraft in class G airspace at altitudes above 900 m (3,000 ft) MSL or 300 m (1,000 ft) from ground, whichever is higher, up to 3,050 m (10,000 ft), is permitted if the horizontal visibility is at least

(1) 8 km.
(2) 5 km.
(3) 3 km.
(4) 1.5 km.

Z-0057. When approaching to land at an airport, without an operating control tower, in Class G airspace, the pilot should

(1) enter and fly a traffic pattern at 800 feet AAL.
(2) make all turns to the left, unless otherwise indicated.
(3) fly a left-hand traffic pattern at 800 feet AAL.

Z-0058. The minimum horizontal distance from clouds requirement for VFR flight in class G airspace at altitudes above 300 m from ground or 900 m MSL, whichever is higher, is

(1) 300 m.
(2) 600 m.
(3) 1,500 m.
(4) 8,000 m.

Z-0059. No person may take off or land an aircraft under basic VFR at an airport that lies within Class D airspace unless the

(1) flight visibility at that airport is at least 1.5 km.
(2) ground visibility at that airport is at least 1.5 km.
(3) ground visibility at that airport is at least 5.0 km.

**Z-0060.** The basic VFR weather minimums for operating an aircraft within Class D airspace are

(1) 450-meter ceiling and 1.5-km visibility.
(2) 450-meter ceiling and 5.0-km visibility.
(3) clear of clouds and 3.0-km visibility.

**Z-0061.** Which is the meteorological minima, that allows the tower to permit an SVFR flight in a control zone during daytime? The flight visibility must be at least

(1) 1,500 m.
(2) 1,500 m and cloud basis 300 m GND.
(3) 5,000 m and cloud basis 300 m GND.
(4) 5,000 m.

**Z-0062.** An aircraft flying above the sea between 4,500 feet MSL and 9,000 feet MSL outside controlled airspace under VFR, must remain at least:

(1) clear of clouds and in sight of the surface; 8 km visibility.
(2) 1,500 m horizontally, 1,000 feet vertically from clouds; 8 km visibility.
(3) 1,500 m horizontally, 1,000 feet vertically from clouds; 5 km visibility.
(4) 2,000 feet horizontally, 1,000 feet vertically from clouds; 5 km visibility.

**Z-0063.** Transition from altitude to flight level, and vice-versa is done:

(1) at transition altitude during climb and transition level during descent.
(2) at transition level during climb and transition altitude during descent.
(3) only at transition altitude.
(4) only at transition level.

**Z-0064.** A VFR flight should adhere to the table of prescribed flight level at flight altitudes, higher than

(1) 3,000 ft GND.
(2) 2,200 ft GND.
(3) 700 ft MSL.
(4) 3,000 ft MSL.

**Z-0065.** Which of the cruising flight level listed is appropriate for a VFR flight over 3,000 ft MSL, while maintaining true course 170° and if the local variation value is 20°W?

(1) FL 55.
(2) FL 40.
(3) FL 30.
(4) FL 65.

**Z-0066.** A pilot-in-command of a VFR cruising flight at the altitudes over 3,000 ft MSL, should fly odd flight levels plus 500 ft, if maintains

(1) magnetic headings between 180° and 359°.
(2) magnetic courses between 000° and 179°.
(3) true courses between 180° and 359°.
(4) true headings between 000° and 179°.

Z-0067. Which of the aircraft listed has always the right-of-way over all other participants in air traffic?

(1) An aircraft in final approach for landing.
(2) A balloon.
(3) An aircraft in distress.

Z-0068. What action is required when two aircraft of the same category converge, but not head-on?

(1) Each aircraft shall give way to the right.
(2) The aircraft on the left shall give way.
(3) The faster aircraft shall give way.

Z-0069. When two aircraft are approaching each other head-on and there is a danger of collision, which way should each aircraft turn?

(1) Each aircraft should turn to the right.
(2) Heavier aircraft should turn to the right, easier aircraft should turn to the left.
(3) Heavier aircraft should turn to the left, easier aircraft should turn to the right.
(4) Each aircraft should turn to the left.

Z-0070. What actions should the pilots of aircraft take if on head-on collision course?

(1) Both should turn to the left.
(2) Both should turn to the left.
(3) Both should make a climbing turn to the right.
(4) Both should make a climbing turn to the left.

Z-0071. How shall aircraft in the air avoid each other on a head-on collision course?

(1) Both aircraft shall alter their headings to the right.
(2) Both aircraft shall alter their headings to the left.
(3) Powered-aircraft has a right of way, non-powered aircraft shall deviate to the right.
(4) Non-powered aircraft has a right of way, powered aircraft shall deviate to the left.

Z-0072. What action should the pilots of an airplane and a glider take if on a head-on collision course?

(1) The airplane pilot should give way.
(2) The airplane pilot should give way, because his aircraft is more controllable.
(3) Both pilot should give way to the right.
(4) The glider pilot should give way, because a glider is more controllable than an airplane.

**Z-0073.** What should the glider pilot do, if on head-on collision course with the two-engined Cessna?

(1) He should deviate to the left thus giving way to the airplane.
(2) He should deviate to the right.
(3) He should open the air brakes immediately, because a multi-engine airplane has the right-of-way.
(4) He may maintain heading and speed, because a glider has always the right-of-way, however he should pay extra attention.

**Z-0074.** Which aircraft has the right-of-way over the other aircraft listed?

(1) Glider.
(2) Airship.
(3) Aircraft towing other aircraft.
(4) Helicopter.

**Z-0075.** Which of the statements listed, concerning the right-of-way when two aircraft converge, but not head-on, is correct?

(1) Normal category aircraft should give way to ultralight aircraft.
(2) Airplanes should give way to helicopters.
(3) Airplanes in free flight should give way to non-powered aircraft.
(4) Ultralight aircraft should give way to normal category aircraft.

**Z-0076.** While in final gliding flight toward airfield, a glider pilot notices an aerotow, closing from his left side. What action should the glider pilot in free flight take?

(1) He should alter his heading to the left and give way to the aerotow, which has the right-of-way over a glider.
(2) He may keep heading and speed, because he is on the right side and thus has the right-of-way, and intensify attentiveness.
(3) He should alter his heading to the left and give way to the aerotow, which has always the right-of-way over all other aircraft.
(4) He may keep heading and speed, because a glider has always the right-of-way over a powered aircraft.

**Z-0077.** Which aircraft must give way at converging of a glider and an airplane in free flight?

(1) The airplane.
(2) The glider.
(3) Both aircraft.
(4) No one.

**Z-0078.** With your aeroplane on an IFR flight in airspace class D, you receive a traffic information from ATC, that an helicopter on VFR flight is going to cross your flight path from right to left. Who has the right-of-way?

(1) ATC decides who has the right of way and issues appropriate instruction.
(2) I have the right-of-way as I am on an IFR flight.
(3) The helicopter has the right-of-way.

Z-0079. Aircraft A with an ATC clearance is flying in VMC conditions within a control area. Aircraft B with no ATC clearance is approaching at approximately the same altitude and on a converging course. Which has the right of way?

(1) Aircraft A regardless of the direction which B is approaching.
(2) Aircraft B regardless of the direction A is approaching.
(3) Aircraft B if A is on its left.
(4) Aircraft A if B is on its right.

Z-0080. Which aircraft must give way when two airplanes are converging at the same altitude?

(1) Bigger airplane.
(2) The airplane on the right.
(3) The ultralight airplane.
(4) The airplane which has another airplane at his right side.

Z-0081. An airplane and another airplane, towing a glider, are on crossing courses. If the aerotow is on the left of the airplane, which has the right-of-way?

(1) The aerotow.
(2) Depends on the magnetic heading of separate aircraft.
(3) The aircraft in free flight.
(4) Both aircraft.

Z-0082. Which of the following statements, concerning heavier-than-air aircraft right-of-way during landing, is correct?

(1) Aircraft at higher level shall give way to aircraft at lower level, but the latter shall not take advantage of this rule to cut in front of another which is in the final stage of an approach to land, or to overtake that aircraft.
(2) Aircraft in final stage of an approach to land or which is first in an airport traffic circuit, has the right-of-way over all other aircraft.
(3) Aircraft which is the highest has the right-of-way over all other aircraft with the exception of turbojet aircraft, which has the right-of-way over propeller aircraft.

Z-0083. When overtaking an aircraft in flight, you should

(1) alter your course to the left.
(2) alter your course to the right.
(3) fly below or above it.
(4) fly below it exclusively.

Z-0084. What are the minimum requirements for airplane operations under SVFR in control zone at night on the terithory of the Republic of Slovenia?

(1) Flight visibility at least 8 km, a visual ground contact, and from the airport boundary the pilot must clearly see runway lights and obstacle lights.
(2) The airplane must be under radar surveillance.
(3) The airplane must be equipped for IFR with an altitude reporting transponder.
(4) The pilot must be instrument rated, and the airplane must be IFR equipped.

Z-0085. A night flying inside the territory of Republic Slovenia is defined by the state regulations as a flying between

(1) sunset and sunrise.
(2) 30 minutes before sunset and 30 minutes after sunrise.
(3) 60 minutes before sunset and 60 minutes after sunrise.
(4) 30 minutes after sunset and 30 minutes before sunrise.

Z-0086. When flying an aircraft without a night rating inside the terithory of the Republic of Slovenia, which is the latest time for landing if the sunset is at 20:15?

(1) 19:45.
(2) 20:15.
(3) 20:45.
(4) 21:15.

Z-0087. What is the minimum visibility permitted for visual night flying on the territory of the Republic of Slovenia?

(1) 8 km.
(2) 10 km.
(3) 12 km.
(4) 15 km.

Z-0088. When landing a sport airplane inside the territory of the Republic of Slovenia, the maximum tailwind component authorised is

(1) 3 m/sec.
(2) 4 m/sec.
(3) 5 m/sec.
(4) 6 m/sec.

Z-0089. Which minimum life-saving equipment is recommended to be on board of a non-commercial flight of a single-engined landplane when flying en route over water beyond gliding distance from the shore?

(1) Life saving rafts in sufficient numbers to carry all persons on board.
(2) Life saving rafts in sufficient numbers to carry all persons on board and one life jacket for each person on board.
(3) One life jacket or equivalent individual floatation device for each person on board.

Z-0090. Which minimum life-saving equipment is needed on board of all non-commercial flights of airplanes when on extended flight over water at a distance greater than 50 NM and less than 100 NM from a land suitable for making an emergency landing?

(1) Life saving rafts in sufficient numbers to carry all persons on board.
(2) Life saving rafts in sufficient numbers to carry all persons on board and one life jacked for each person on board.
(3) One life jacket or equivalent individual floatation device for each person on board.

**Z-0091.** Which land aeroplane must carry on bord additionally to appropriate number of life jackets sufficient number of life-saving rafts and equipment for making the pyrotechnical distress signal when flying as a non-commercial flight over water away from land suitable for making an emergency landing at a distance of more than 100 NM?

(1) All single-engined and all multi-engined airplanes.
(2) Multi-engined airplanes only.
(3) Single-engined airplanes only.

**Z-0092.** What is the distance from land suitable for making an emergency landing at which must an extended over water non-commercial flight of a multi-engined aeroplane capable of continuing flight with one engine inoperative carry additional to appropriate number of life jackets sufficient number of life-saving rafts and the equipment for making the pyrotechnical distress signals?

(1) 50 NM.
(2) 100 NM.
(3) 200 NM.

**Z-0093.** The responsibility for ensuring that maintenance personnel make the appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service lies with the

(1) owner or operator.
(2) pilot in command.
(3) mechanic, who performed the work.

**Z-0094.** Which agency issues the Radio Station Licence for an aircraft?

(1) Association of Radio Amateurs of the Republic of Slovenia.
(2) Post and Electronics Communications Agency of the Republic of Slovenia.
(3) Telekom.
(4) Ministry of Transport of the Republic of Slovenia.

**Z-0095.** How often is a glider or an aeroplane state of airworthiness inspected by the authorized person?

(1) Regularly every two years and after a hard landing.
(2) Regularly each year and in case if changing ownership or after repairs.
(3) One year after the last regular inspection and in case of changing ownership.
(4) Regularly each year before beginning of a flying season.

**Z-0096.** Requested national mark of an aircraft registered in the Republic of Slovenia is

(1) the country flag of the Republic of Slovenia and the mark S5.
(2) the country flag of the Republic of Slovenia.
(3) a four-placed mark consisting of a certain combination of letters.
(4) a random four-placed number.

Z-0097. The registration mark of an airplane or helicopter registered in the Republic of Slovenia is

(1) a four-placed mark consisting of a certain combination of digits and letters.
(2) a six-placed mark consisting of a certain combination of digits and letters.
(3) the mark S5.
(4) a certain combination of three letters.

Z-0098. An ATC clearance provides

(1) priority over all other traffic.
(2) adequate separation from all traffic.
(3) authorization to proceed under specified traffic conditions in controlled airspace.

Z-0099. What action should be taken if a pilot receives a clearance that will cause a deviation from a rule?

(1) Accept the clearance, because the pilot is not responsible for the deviation.
(2) Accept the clearance and advise Air Traffic Control when deviation occurs.
(3) Refuse the clearance as stated and request that it be amended.
(4) Accept the clearance and advise Air Traffic Control that he believes a rule deviation will occur.

Z-0100. A pilot may deviate from a traffic control clearance if

(1) it does not concur with the filled flight plan.
(2) an emergency situation requires an immediate action.
(3) it contradicts published procedure.
(4) other air traffic is not endangered.

Z-0101. If a pilot has to deviate from an air traffic control clearance due to unforseen circumstances, he has to

(1) inform all ATC stations concerned by transmitting a multiple call.
(2) transmit a general call giving all details concerning his deviation from the ATC clearance.
(3) notify the competent ATC unit without delay and obtain an amended ATC clearance.
(4) notify the Aeronautical Information Service.

Z-0102. What is the recommended action when an aircraft detects an ELT signal?

(1) Attempt to locate the signal using the null method.
(2) Communicate the discovery to the nearest ATC unit.
(3) Attempt to get a bearing of the signal with the ADF.
(4) Attempt a search & rescue operation if equipped to do so.

Z-0103. When intercepted by a military aircraft, the pilot of an VFR aircraft should

(1) attempt to establish communications with the intercepting aircraft over 121.5 MHz and comply with the intercepts signals.
(2) squawk 7700.
(3) acknowledge receipt of intercepting aircraft instructions with the appropriate visual signals.
(4) all of the above.

**Z-0104.** During a cross-country flight you notice the military aircraft approaching your left wingtip and flying along; after a short time it makes an abrupt break-away maneuver of a climbing turn to the left. What does this mean?

(1) You have been intercepted. Follow me!
(2) Land at the aerodrome in the direction of my flight!
(3) Leave the prohibited area immediately!
(4) You may proceed!

**Z-0105.** During a cross-country flight you notice the military aircraft approaching your left wingtip, flying along for a while, then rocking the wings and commencing a shallow turn to the right. What does this mean?

(1) You have been intercepted. Follow me!
(2) Leave the prohibited area immediately!
(3) You may proceed!
(4) Return to the aerodrome of origin!

**Z-0106.** During a cross-country flight you find yourself in the vicinity of an unknown airport. A military aircraft approaches, turns around your aircraft, rocks the wings and finally lowers the landing gear. What does this mean?

(1) You may proceed!
(2) You have been intercepted, land at the airport below you!
(3) Leave the airport zone immediately!
(4) Leave the airport zone and land at the nearest sport airfield!

**Z-0107.** After an aircraft has been intercepted in flight, the intercepted aircraft is rocking its wings. This means:

(1) understood.
(2) NO.
(3) you are not to enter this airspace.
(4) will comply.

## RADIO-TELEPHONY (R)

**R-0001.** Which of the following messages have priority number one over other messages?

(1) Flight regularity messages.
(2) Flight safety messages.
(3) Meteorological messages.
(4) Distress messages.

**R-0002.** When an air traffic controller issues radar traffic information in relation to the 12-hour clock, the reference the controller uses is the aircraft`s

(1) true course.
(2) ground track.
(3) magnetic heading.

**R-0003.** ATC radar facility issues the following advisory to a pilot during a local flight:

"TRAFFIC AT 2 0' CLOCK, 5 MILES, NORTHBOUND"

Where should the pilot look for this traffic?

(1) Directly ahead.
(2) Between directly ahead and 90° to the left.
(3) Between directly behind and 90° to the right.
(4) Between directly ahead and 90° to the right.

**R-0004.** The type of the service indicated by the suffix CONTROL refers to

(1) aerodrome control.
(2) area control service.
(3) ground movement control.
(4) approach control.

**R-0005.** ATIS is broadcasted on

(1) ILS frequencies.
(2) NDB frequencies.
(3) FIS frequencies.
(4) VOR frequencies and/or discrete VHF frequencies.

**R-0006.** A pilot of an aircraft with call sign S5-CAF should initiate his radio message to the Vienna Ground with

(1) VIENNA GROUND S5CAF GOOD AFTERNOON.
(2) VIENNA GROUND THIS IS S5CAF GOOD AFTERNOON.
(3) S5CAF VIENNA GROUND OVER.
(4) VIENNA GROUND S5CAF GO AHEAD.

**R-0007.** The pilot may abbreviate the call sign of an aircraft

(1) after radio contact with the ground station has been established.
(2) not at all.
(3) any time at his discretion.
(4) only after the ground station has used the abbreviated call sign.

**R-0008.** The pilot tests the readability of transmission using the phrase

(1) RADIO TEST.
(2) REQUEST READABILITY OF TRANSMISSION.
(3) RADIO CHECK (FREQUENCY).
(4) REQUEST RADIO CHECK (FREQUENCY).

**R-0009.** What is the meaning of the term "IMC"?

(1) Flight according to instrumental flight rules.
(2) Flight according to visual flight rules.
(3) Visual meteorogical conditions.
(4) Instrumental meteorogical conditions.

**R-0010.** What is the meaning of the term "VFR flight"?

(1) Training flight.
(2) Flight without passengers on board.
(3) Flight according to instrumental flight rules.
(4) Flight according to visual flight rules.

**R-0011.** The term "SVFR flight" stands for

(1) special VFR flight.
(2) search and rescue VFR flight.
(3) sector VFR flight.
(4) schooling VFR flight.

**R-0012.** What is the meaning of the term "VMC"?

(1) Visual meteorogical conditions.
(2) A flight accordingly to instrumental flight rules.
(3) Instrumental flight rules.
(4) Visual flight rules.

**R-0013.** What does the standard phrase "APPROVED" mean?

(1) Permission for proposed action is granted.
(2) Let me know that you have received this message.
(3) Annul the previously transmitted clearance.
(4) Authorized to proceed under the conditions specified.

**R-0014.** What does the phrase "WILCO" mean?

(1) I understand your message and will comply with it.
(2) I have received all of your last transmission.
(3) My message is ended and I expect a response from you.
(4) Permission granted.

**R-0015.** What is the meaning of the phrase "ROGER"?

(1) I have received all of your last transmission.
(2) I understand your message and will comply with it.
(3) My transmission is ended and I expect a response from you.
(4) Permission for proposed action granted.

**R-0016.** What is the meaning of the phrase "ACKNOWLEDGE"?

(1) I have received all of your last transmission.
(2) Repeat all or the following part of your last transmission.
(3) Let me know that you have received and understood this message.
(4) My transmission is ended and I expect a response from you.

**R-0017.** What does the phrase "SAY AGAIN" mean?

(1) Repeat the entire message.
(2) Repeat the last transmitted word only.
(3) Repeat all, or the following part, of your last transmission.
(4) Repeat each word twice.

**R-0018.** What does the phrase "GO AHEAD" mean?

(1) Proceed with your message.
(2) Taxi to the holding point.
(3) Start taxiing.
(4) Read back the departure clearance.

**R-0019.** What does the phrase "MONITOR" mean?

(1) Establish radio contact with ...
(2) I repeat for clarity or emphasis.
(3) Listen out on (frequency).
(4) Watch the instruments.

**R-0020.** What does the phrase "REPORT" mean?

(1) Say again.
(2) Pass me the following information.
(3) Pass your message.
(4) Proceed with your message.

**R-0021.** Which of these statements best describe the meaning of the phrase "CHECK"?

(1) Check and confirm with the originator.
(2) Examine the system or procedure.
(3) That is correct.
(4) Pass me the following information.

**R-0022.** What is the meaning of the phrase "VERIFY"?

(1) I hereby indicate the separation between two portions of the message.
(2) Check and confirm with the originator.
(3) No, or permission not granted or that is not correct.
(4) Repeat all or the following part of your last transmission.

**R-0023.** Which altitude has been reported by a pilot using the phrase "FIVE-THOUSAND-FEET-QFE"?

(1) Flight level.
(2) Altitude above mean sea level.
(3) Adequate altitude in International Standard Atmosphere (ICAO).
(4) Height above the airfield.

**R-0024.** When a pilot reports "FIVE-THOUSAND-FEET", the controller concludes

(1) the altitude of the aircraft is 5,000 ft above mean sea level.
(2) the altimeter of the aircraft is set to the local QFE.
(3) the altitude of the aircraft is 5,000 ft above the airfield.
(4) the altimeter of the aircraft is set to the standard pressure 1013.2hPa.

**R-0025.** What is the meaning of the term "FLIGHT LEVEL"?

(1) A pressure level based on regional QNH.
(2) A level in atmosphere for vertical separation which is determined by setting the altimeter to local QNH.
(3) A level in atmosphere for vertical separation which is determined by setting the altimeter to 1013.2 hPa.
(4) A level in atmosphere for vertical separation which is determined by setting the altimeter to local QFE.

**R-0026.** What does the abbreviation "SID" mean?

(1) Standard instrument arrival route.
(2) Standard instrument departure route.
(3) Standard visual departure route.
(4) Standard visual arrival route.

R-0027. A pilot receives the clearance to hold over an enroute reporting point until a specified time. This time is called

(1) expected approach time.
(2) estimated over time.
(3) estimated time of arrival.
(4) holding time.

R-0028. What does the phrase "QDM" mean?

(1) Atmospheric pressure at airfield elevation.
(2) Actual weather at an airfield.
(3) Atmospheric pressure at airfield elevation, reduced to sea level.
(4) Magnetic direction from an aircraft to the goniometric station.

R-0029. What does "QNH" mean?

(1) Atmospheric pressure at aerodrome elevation.
(2) Non-directional radio beacon.
(3) Altimeter sub-scale setting to obtain elevation when on ground.
(4) A specific geographical location at which the position of an aircraft is reported.

R-0030. What does the term "ALTITUDE" mean?

(1) Altitude above mean sea level.
(2) Height above an airfield.
(3) Flight level.
(4) Standard altitude.

R-0031. What is the correct readback of the following departure clearance?

ATC: S-AA cleared to Portorož, after departure climb to altitude 3,000 feet, turn right to S2, QNH 1002.

(1) ACFT: S-AA cleared to Portorož, turn right to S2, after departure climb to altitude 3,000 feet.
(2) ACFT: S-AA cleared to Portorož, after departure climb to 3,000 feet, turn right to S2, S-AA.
(3) ACFT: S-AA cleared to Portorož, after departure climb to altitude 3,000 feet, turn right to S2, QNH 1002, S-AA.
(4) ACFT: S-AA cleared to Portorož, QNH 1002, S-AA.

R-0032. What is the correct pilot's response?

ATC: S-AA, are you ready for departure?

(1) AFFIRM.
(2) READY FOR DEPARTURE.
(3) TAKING-OFF.
(4) LINING-UP.

R-0033. When an aircraft fails to establish communication with an aeronautical station or aircraft station, the aircraft has to transmit its message twice, preceded by the phrase

(1) MAYDAY.
(2) PANPAN.
(3) TRANSMITTING BLIND.
(4) WORDS TWICE.

R-0034. The phrase "CLEARANCE EXPIRES AT 02 35" means that the pilot

(1) will be granted permission for takeoff by 02 35.
(2) may takeoff after 02 35.
(3) shall wait until 02 35 asking for departure clearance.
(4) shall start up engines at 02 35.

R-0035. Which phrase is used to annul the previously transmitted clearance?

(1) RECLEARED.
(2) NEGATIVE.
(3) CANCEL.
(4) DISREGARD.

R-0036. A pilot may file a flight plan with an ATC unit during the flight using the phrase

(1) REQUEST FILE FLIGHT PLAN.
(2) CANCELING MY FLIGHT PLAN.
(3) REQUEST FILL IN FLIGHT PLAN.
(4) READY TO COPY.

R-0037. If no ATIS is available, the pilot asks for departure information using the phrase

(1) REQUEST DEPARTURE INSTRUCTIONS.
(2) REQUEST DEPARTURE INFORMATION.
(3) I WOULD LIKE DEPARTURE INFORMATION.
(4) REPORT DEPARTURE INFORMATION.

R-0038. When measures the relative heights above an airfields, an altimeter of the aircraft is set to the atmospheric pressure, named in aviation as

(1) QBA.
(2) QFE.
(3) ELT.
(4) QNH.

R-0039. The prescribed phrase for obtaining a permission to taxi to the runway for departure is

(1) REQUEST TAXI CLEARANCE.
(2) REQUEST TAXI.
(3) REQUEST PERMISSION TO TAXI.
(4) WHAT IS MY TAXI CLEARANCE.

R-0040. The permission to taxi to the takeoff position will be phrased

(1) TAXI TO THE TAKEOFF POSITION.
(2) CLEARED INTO POSITION AND HOLD.
(3) CONTINUE TO TAKEOFF POSITION AND HOLD.
(4) LINE UP.

R-0041. Which phrase is used by an ATC when advising the pilot that the position report over the compulsory reporting point is not required?

(1) CANCEL POSITION REPORT OVER ... (fix).
(2) NO POSITION REPORT OVER ... (fix).
(3) DO NOT REPORT OVER ... (fix).
(4) OMIT POSITION REPORT OVER ... (fix).

R-0042. ATC will give a descent instruction by using the phrase

(1) MAINTAIN FL...
(2) DESCEND TO FL...
(3) LEAVE FL... FOR FL...
(4) CLEARED FL...

R-0043. ATC will give a climb instruction by using the phrase

(1) MAINTAIN FL...
(2) CLIMB TO FL...
(3) LEAVE FL... FOR FL...
(4) CLEARED FL...

R-0044. An aircraft had initially been cleared to climb to FL100. For separation purposes the aircraft has to be leveled of at FL 80 for a few minutes. ATC will give this instruction by using the phrase

(1) LEVEL OFF AT FL80.
(2) MAINTAIN FL80.
(3) STOP CLIMB AT FL80.
(4) CLEARED FL80.

R-0045. If requested by the control tower to report having crossed the runway, the pilot has to use the phrase

(1) I HAVE LEFT THE RUNWAY.
(2) I AM CLEAR OF RUNWAY.
(3) I AM BEYOND THE RUNWAY.
(4) RUNWAY VACATED.

R-0046. You have just landed at a towered airport and the tower tells you to contact ground when clear of the runway. You are considered clear of the runway when

(1) all parts of the aircraft have crossed the hold line.
(2) the aircraft cockpit is clear of the hold line.
(3) the tail of the aircraft is of the runway edge.

R-0047. In order to get a bearing, the ground station will request the pilot to

(1) TRANSMIT FOR BEARING.
(2) SQUAWK IDENT.
(3) REPORT BEARING.
(4) TRANSMIT FOR DF.

R-0048. In addition to the call sign and present position, what is the correct sequence of a position report on route?

(1) Time, flight level or altitude, first next fix and estimated time of crossing, second next fix and estimated time of crossing.
(2) Flight level or altitude, first next fix and estimated time of crossing, second next fix.
(3) Flight level or altitude, first next fix and estimated time of crossing.
(4) Time, flight level or altitude, first next fix and estimated time of crossing, second next fix.

R-0049. The controller wants to obtain the information about the level at which an aircraft is flying, using the phrase

(1) WHAT IS YOUR LEVEL.
(2) REPORT LEVEL.
(3) REQUEST LEVEL.
(4) TRANSMIT YOUR LEVEL.

R-0050. If a pilot may start climb/descent at his convenience, an ATC will use the phrase

(1) WHEN READY CLIMB/DESCEND TO FL...
(2) CLIMB/DESCEND TO FL... AT YOUR CONVENIENCE.
(3) CLIMB/DESCEND TO FL...
(4) CLIMB/DESCEND TO FL... AT ANY TIME.

R-0051. The number 600 should be broadcasted as

(1) SIX-ZERO-ZERO.
(2) SIX HUNDRED.
(3) SIX-NULL-NULL.
(4) SIXTY- ZERO.

R-0052. When broadcasting numbers in radiotelephony communication, the number 583 is transmitted as

(1) FIVE-EIGHT-THREE.
(2) FIVE HUNDRED EIGHTY THREE.
(3) FIFTY EIGHT-THREE.
(4) FIVE HUNDRED EIGHT THREE.

R-0053. When transmitting numbers in radiotelephony communication, the number 496 is transmitted as

(1) FOUR HUNDRED AND NINETY SIX.
(2) FOUR HUNDRED AND NINER SIX.
(3) FOUR NINETY SIX.
(4) FOUR NINER SIX.

R-0054. An altitude of 11,000 ft should be broadcasted as

(1) ELEVEN THOUSAND FEET.
(2) ONE-ONE-ZERO-ZERO-ZERO FEET.
(3) ELEVEN THOUSAND ZERO FEET.
(4) ONE-ONE THOUSAND FEET.

R-0055. Altitude 10,500 ft should be broadcasted as

(1) TEN THOUSAND FIVE HUNDRED FEET.
(2) TEN POINT FIVE.
(3) ONE-ZERO THOUSAND FIVE HUNDRED FEET.
(4) ONE-ZERO-FIVE HUNDRED FEET ABOVE SEA LEVEL.

R-0056. An altitude of 5,000 ft should be broadcasted as

(1) FIVE-THOUSAND FEET.
(2) FIVE-NULL-NULL-NULL.
(3) FIVE-ZERO-ZERO-ZERO FEET.
(4) FIFTY HUNDRED.

R-0057. An altitude of 4,500 ft QNH should be pronounced as

(1) FORTY-FIVE-THOUSAND.
(2) FOUR POINT FIVE.
(3) FORTY-FIVE HUNDRED FEET ABOVE SEA LEVEL.
(4) FOUR THOUSAND FIVE HUNDRED FEET.

R-0058. An altitude of 3,500 feet should be transmitted as

(1) THREE POINT FIVE HUNDRED FEET.
(2) THREE THOUSAND FIVE HUNDRED FEET.
(3) THREE POINT FIVE ZERO ZERO.
(4) THREE DECIMAL FIVE HUNDRED.

R-0059. In aviation broadcasting, how do we pronounce COMM frequency 118.150 MHz?

(1) ONE-ONE-EIGHT DECIMAL ONE-FIVE.
(2) ONE-ONE-EIGHT DECIMAL ONE-FIVE-ZERO.
(3) ONE-ONE-EIGHT POINT ONE-FIVE-ZERO.
(4) ONE-ONE-EIGHT DASH ONE-FIVE.

**R-0060.** COMM frequency 118.0 MHz should be broadcasted by pronouncing

(1) ONE HUNDRED EIGHTEEN POINT NULL.
(2) ONE-ONE-EIGHT DECIMAL ZERO.
(3) ONE-ONE-EIGHT.
(4) ONE-ONE-EIGHT POINT ZERO.

**R-0061.** COMM frequency 118.125 MHz should be transmitted by pronouncing

(1) ONE-ONE-EIGHT DECIMAL ONE-TWO-FIVE.
(2) ONE-ONE-EIGHT-ONE-TWO-FIVE.
(3) ONE-ONE-EIGHT DECIMAL ONE-TWO.
(4) ONE-ONE-EIGHT POINT ONE-TWO-FIVE.

**R-0062.** In aviation broadcasting, how do we pronounce COMM frequency 118.1 MHz?

(1) ONE-ONE-EIGHT-POINT ONE.
(2) ONE HUNDRED ELEVEN POINT ONE.
(3) ONE-ONE-EIGHT-ONE.
(4) ONE-ONE-EIGHT DECIMAL ONE.

**R-0063.** That portion of the runway identified by the letter C is called

(see Figure 24)

(1) START-UP POSITION.
(2) APRON.
(3) BASE LEG.
(4) LINE-UP POSITION.

**R-0064.** That portion of the airport traffic circuit identified by the letter E is called

(see Figure 24)

(1) LINE-UP.
(2) DOWNWIND POSITION.
(3) CROSSWIND LEG.
(4) BASE LEG.

**R-0065.** Which designator denotes part of the aerodrome traffic circuit named "Base Leg"?

(see Figure 24)

(1) G.
(2) F.
(3) E.
(4) D.

**R-0066.** Which letter identifies that portion of the airport traffic circuit, called "FINAL LEG"?

(see Figure 24)

(1) E.
(2) F.
(3) G.
(4) C.

**R-0067.** When a control tower transmits the phrase "REPORT DOWNWIND", the pilot is instructed to report

(1) estimated wind direction and velocity at the altitude of flying.
(2) maximum allowed tail wind for landing.
(3) aircraft position in traffic pattern between the second turn and the third turn, abeam of the halfway point of the runway.
(4) aircraft position "final" in traffic pattern.

**R-0068.** That portion of the airport identified by the letter A is called

(see Figure 24)

(1) RUNWAY.
(2) TAXIWAY.
(3) BASE LEG.
(4) APRON.

**R-0069.** That portion of the airport taxyway identified by the letter B is called

(see Figure 24)

(1) HOLDING POINT.
(2) APRON.
(3) LINE-UP POSITION.
(4) CROSSWIND LEG.

**R-0070.** If the pilot of an aircraft, equipped with the transponder, has been instructed "SQUAWK 1200" by an ATC, he should set the code 1200 on the transponder and

(1) push the button "IDENT".
(2) move the switch to "ON" or "ALT", if not yet selected.
(3) move the switch to "STANDBY".
(4) move the switch to "STANDBY" and depress on button "IDENT".

**R-0071.** How will a pilot manage to follow the radar controller's instruction "SQUAWK ALFA FOUR FOUR"? Switch the transponder to mode

(1) A, code 0044.
(2) A, code 4400 and mode C.
(3) A, code 0440.
(4) A, code 4444.

**R-0072.** The phrase, which instructs the pilot to set transponder code A6620 again, is

(1) SQUAWK AGAIN ALPHA 6620.
(2) SWITCH ON ALPHA 6620.
(3) CONFIRM SQUAWKING ALPHA 6620.
(4) RECYCLE ALPHA 6620.

R-0073. If the pilot has been instructed to set mode A on the transponder, he shall set

(1) mode A only.
(2) mode A, B and C.
(3) mode A and C.
(4) mode A on "STBY".

R-0074. If a transponder does not transmit on mode C although it is expected, an ATC will instruct the pilot to switch on mode C by using the phrase

(1) SQUAWK CHARLIE.
(2) SQUAWK ALTIMETER.
(3) SQUAWK PRESSURE ALTITUDE.
(4) TRANSMIT ON MODE CHARLIE.

R-0075. When entering a controlled airspace in the Republic of Slovenia, and with no other instructions from the air traffic control concerning a transponder setting, which mod and code should the pilot set on a transponder?

(1) A 7700.
(2) A 7500.
(3) A 2000.
(4) A 7600.

R-0076. The controller may request the pilot to temporarily stop transponder operation using the phrase

(1) SQUAWK STANDBY.
(2) SQUAWK IDENT.
(3) COMFIRM SQUAWK.
(4) STOP SQUAWK.

R-0077. When switching the transponder to "STBY"

(1) the sensibility of the receiver is reduced.
(2) the transponder is immediately available, if required.
(3) the selected code is transmitting flight level information only.
(4) the transponder is switched off completely.

R-0078. What is the transponder mode and code for radio communication failure?

(1) A 7700.
(2) A 7500.
(3) A 0077.
(4) A 7600.

R-0079. A pilot squawking A 7600 indicates to the ground station that

(1) his flight is being hijacked.
(2) he has radio communication failure.
(3) he has a sick person on board.
(4) his aircraft is in an emergency situation.

**R-0080.** A pilot squawking A 7700 indicates to the ground station that

(1) his radio is unserviceable.
(2) he has a sick person on board.
(3) his aircraft is in an emergency situation.
(4) his flight is being hijacked.

**R-0081.** Which of the following are so called "prohibited" transponder codes?

(1) 1200, and 7500.
(2) 1200, 7600, and 7700.
(3) 7500, 7600, and 7700.

**R-0082.** Under which of the following circumstances shall a pilot squawk an internationally prescribed mode/code?

(1) When entering bad weather areas.
(2) When approaching restricted areas.
(3) When flying over the open sea.
(4) In case of radio communication failure.

**R-0083.** Which mode and code should be set on a transponder in case of a distress (an emergency)?

(1) A 7700.
(2) A 7500.
(3) A 0077.
(4) A 7600.

**R-0084.** In case a pilot intend to transmit by radiotelephony an urgent message, concerning safety of the other aircraft, he should begin his broadcast by the

(1) spoken word "PANPAN".
(2) spoken word "MAYDAY".
(3) Morse code "XXX".
(4) Morse code "MAYDAY".

**R-0085.** During overflying a remote forest area you notice a hang glider on tree canopies and it seems to you that the pilot hangs on his harnesses. You decide to call the nearest airport and report the accident. The phrase with which you should begin your radiotelephony message is:

(1) EMERGENCY, EMERGENCY, EMERGENCY.
(2) MEDICAL, MEDICAL, MEDICAL.
(3) MAYDAY, MAYDAY, MAYDAY.
(4) PANPAN, PANPAN, PANPAN.

R-0086. With which of the following phrases should you begin your radio message, if you want to report to the ground that you are coming to land and need a medical assistance for the passenger, who had a hard attack?

(1) EMERGENCY, EMERGENCY, EMERGENCY.
(2) MEDICAL, MEDICAL, MEDICAL.
(3) MAYDAY, MAYDAY, MAYDAY.
(4) PANPAN, PANPAN, PANPAN.

R-0087. During a cross-country flight you notice an emergency landing of a light aeroplane on a meadow below. The aircraft seems undamaged and the pilot unhurt. Which phrase will you use at the beginning of your report to the air traffic control concerning the event?

(1) PANPAN, PANPAN, PANPAN.
(2) MAYDAY, MAYDAY, MAYDAY.
(3) HELPHELP, HELPHELP, HELPHELP.
(4) EMERGENCY, EMERGENCY, EMERGENCY.

R-0088. Which distress signal is used in a distress condition, requiring immediate assistance?

(1) MAYDAY MAYDAY MAYDAY.
(2) PANPAN PANPAN PANPAN.
(3) DECLARING EMERGENCY.
(4) HELP ME.

R-0089. Which radiotelephony phrase means "WE ARE IN GRAVE AND IMMINENT DANGER, AND IMMEDIATE ASSISTANCE IS REQUIRED"?

(1) Word "MAYDAY", transmitted by Morse code.
(2) Spoken word "MAYDAY".
(3) Spoken word "SECURITY".
(4) Spoken word "PANPAN".

R-0090. Which broadcasting phrase means "URGENT MESSAGE CONCERNING SAFETY OF THE OTHER AIRCRAFT"?

(1) Word "MAYDAY", transmitted in Morse code.
(2) Spoken word "MAYDAY".
(3) Spoken word "SECURITY".
(4) Spoken word "PANPAN".

R-0091. The phrase, with which a radiotelephony distress message is being started, is:

(1) MAYDAY, MAYDAY, MAYDAY.
(2) PANPAN, PANPAN, PANPAN.
(3) EMERGENCY, EMERGENCY, EMERGENCY.
(4) HELP, HELP, HELP.

R-0092. At outlanding you damaged your aircraft and hurt yourself however there is nobody in the vicinity to assist you. Which is the international phrase, with which you should start your radiotelephony call for a help?

(1) EMERGENCY, EMERGENCY, EMERGENCY.
(2) PANPAN, PANPAN, PANPAN.
(3) MEDICAL, MEDICAL, MEDICAL.
(4) MAYDAY, MAYDAY, MAYDAY.

R-0093. Which of the following frequencies is the international emergency frequency?

(1) 122.538 MHz.
(2) 6538 MHz.
(3) 121.050 MHz.
(4) 121.500 MHz.

R-0094. The frequency 121.5 MHz is

(1) an international emergency frequency.
(2) a regional guard frequency.
(3) a regional frequency.
(4) a frequency for air-to-air communication.

R-0095. Which frequency is intended for a conversation between the intercepting aircraft and the intercepted aircraft?

(1) International emergency frequency 121.5 MHz.
(2) Local air force frequency.
(3) Local emergency frequency.
(4) Frequency air-air.

R-0096. The phrase "CALL SIGN", passed by a radio from a pilot of an intercepting aircraft to the pilot of an intercepted aircraft, means:

(1) Call the air traffic control!
(2) What is your call sign?
(3) Transmit an emergency call!
(4) Return to your airport of origin!

R-0097. What is the meaning of the phrase "YOU LAND", passed by a radio from the pilot of an intercepting aircraft to the pilot of an intercepted aircraft?

(1) Report the name of your aerodrome of origin.
(2) You may proceed.
(3) Land at this aerodrome.
(4) Follow me.

R-0098. Which is the correct phrase used by the pilot of an intercepted aircraft to convey to an intercepting aircraft his inability to comply with the received instructions?

(1) AM LOST.
(2) WILCO.
(3) CAN NOT.
(4) MAYDAY.

R-0099. The pilot of an intercepted aircraft report to the pilot of an intercepting aircraft that he is lost and his position is uncertain to him by transmitting the following international radio phrase

(1) WILCO.
(2) CAN NOT.
(3) MAYDAY.
(4) AM LOST.

R-0100. If the pilot cannot follow the instructions and orders, he should advise the air traffic control by transmitting the phrase

(1) I CANNOT COMPLY.
(2) UNABLE TO ACCEPT.
(3) UNABLE TO COMPLY.
(4) REQUEST RECLEARANCE.

R-0101. When being intercepted by a military aircraft, the pilot of the intercepted aircraft should try to establish radio contact with the intercepting aircraft on the frequency

(1) 126.7 MHz.
(2) 122.8 MHz.
(3) 121.5 MHz.
(4) 123.5 MHz.

R-0102. By which international phrase will the intercepting aircraft direct the intercepted aircraft to follow him?

(1) PROCEED.
(2) FOLLOW.
(3) YOU LAND.
(4) CALL SIGN.

R-0103. By which international phrase will the intercepting aircraft allows the intercepted aircraft to continue the flight?

(1) CALL SIGN.
(2) FOLLOW.
(3) DESCEND.
(4) PROCEED.

## HUMAN PERFORMANCE AND LIMITATIONS (L)

**L-0001.** Which statement is true regarding alcohol in the human system?

(1) Alcohol renders a pilot more susceptible to hypoxia.
(2) Small amounts of alcohol will not impair flying skills.
(3) Coffee helps metabolize alcohol and alleviates a hangover.

**L-0002.** If advice is needed concerning possible flight with an illness, a pilot should contact

(1) an Aviation Medical Examiner.
(2) their family doctor.
(3) the nearest hospital.

**L-0003.** Which will always affect your ability to fly?

(1) Over-the-counter analgesics and antihistamines.
(2) Antibiotics and anesthetics drugs.
(3) Prescription analgesics and antihistamines.

**L-0004.** As a pilot, flying for long periods in hot summer temperatures increases the susceptibility of dehydration since the

(1) dry air at altitude tends to increase the rate of water loss from the body.
(2) moist air at altitude helps retain the body´s moisture.
(3) temperature decreases with altitude.

**L-0005.** Motion sickness is caused by

(1) continued stimulation of the tiny portion of the inner ear which controls sense of balance.
(2) an instability in the brain cells which affect balance and will generally be overcome with experience.
(3) the movement of an aircraft causing the stomach to create an acid substance which causes the stomach lining to contract.

**L-0006.** What suggestion could you make to your pilot fellow who is experiencing motion sickness?

(1) Recommend taking medication to prevent motion sickness.
(2) Lower her/his head, shut her/his eyes, and take deep breaths.
(3) Avoid unnecessary head movement and to keep her/his eyes on a point outside the aircraft.

**L-0007.** In an unpressurised aircraft, at high altitudes the amount of oxygen that diffuses across the lung membranes into the blood is

(1) decreased because of the low partial pressure of oxygen.
(2) decreased because of the lower temperatures.
(3) unchanged to that at sea level.

**L-0008.** During a climb to 18,000 ft, the percentage of oxygen in the atmosphere

(1) increases.
(2) decreases.
(3) remains the same.

**L-0009.** Although not required, supplemental oxygen is recommended for use when flying at night above

(1) 1,500 m (5,000 ft).
(2) 3,050 m (10,000 ft).
(3) 3,800 m (12,500 ft).

**L-0010.** Hypoxia is the result of

(1) shortage of oxygen in the body.
(2) insufficient oxygen in the air.
(3) excessive nitrogen in the bloodstream.

**L-0011.** Which statement best defines hypoxia?

(1) A state of oxygen deficiency in the body.
(2) An abnormal increase in the volume of air breathed.
(3) A condition of gas bubble formation around the joints or muscles.

**L-0012.** Which statement concerning hypoxia is true?

(1) Hypoxia is caused by nitrogen bubbles in the joints and bloodstream.
(2) Tingling of the skin and a false sense of security may be symptoms of hypoxia.
(3) Forcing oneself to concentrate on the flight instruments will help to overcome the effects of hypoxia.

**L-0013.** Which occurs when climbing above 18,000 feet in an unpressurized aircraft without supplemental oxygen?

(1) Gases trapped in the body contract and prevent nitrogen from escaping the bloodstream.
(2) The pressure in the middle ear becomes less than the atmospheric pressure in the cabin.
(3) The oxygen pressure within the lungs cannot be maintained without an increase in inhaled oxygen pressure.

**L-0014.** Susceptibility to carbon monoxide poisoning increases as

(1) altitude increases.
(2) altitude decreases.
(3) air pressure increases.

**L-0015.** Hypemic hypoxia has the same symptoms as hypoxic hypoxia, but it is most often a result of

(1) poor blood circulation.
(2) a leaking exhaust manifold.
(3) use of alcohol or drugs before flight.

**L-0016.** Carbon monoxide in an aircraft cabin is

(1) easily recognizable because of its peculiar odor.
(2) easily recognizable because of its peculiar color.
(3) difficult to recognize because of its odorless and colorless.

**L-0017.** Large accumulations of carbon monoxide in the human body result in

(1) tightness across the forehead.
(2) loss of muscular power.
(3) an increased sense of well-being.

**L-0018.** What is one effect smoking has on a pilot?

(1) Decreases night vision by 50 percent.
(2) Increases body heat which, in turn, creates a demand for more oxygen.
(3) Creates additional carbon dioxide gases in the body which often leads to hyperventilation.

**L-0019.** A person may not act as a crewmember of a civil aircraft if alcoholic beverages have been consumed by that person within the preceding

(1) 8 hours.
(2) 12 hours.
(3) 24 hours.

**L-0020.** Which would most likely result in hyperventilation?

(1) Emotional tension, anxiety, or fear.
(2) The excessive consumption of alcohol.
(3) An extremely slow rate of breathing and insufficient oxygen.

**L-0021.** Rapid or extra deep breathing while using oxygen can cause a condition known as

(1) aerosinusitis.
(2) aerotitis.
(3) hyperventilation.

**L-0022.** Hyperventilation results from

(1) a lack of carbon dioxide in the body.
(2) flying too high without supplemental oxygen.
(3) breathing too rapidly causing a lack of oxygen.

L-0023. A pilot should be able to overcome the symptoms or avoid future occurrences of hyperventilation by

(1) closely monitoring the flight instruments to control the airplane.
(2) slowing the breathing rate, breathing into a bag, or talking aloud.
(3) increasing the breathing rate in order to increase lung ventilation.

L-0024. If an individual has gone scuba diving which has not required a controlled ascent and will be flying to cabin pressure altitudes of 8,000 feet or less, the recommended waiting time is at least

(1) 4 hours.
(2) 12 hours.
(3) 24 hours.

L-0025. If an individual has gone scuba diving which has required a controlled ascent and will be flying to cabin pressure altitudes of 8,000 feet or less, the recommended waiting time is at least

(1) 4 hours.
(2) 12 hours.
(3) 24 hours.

L-0026. Dark adaptation is impaired by exposure to

(1) carbon dioxide.
(2) vitamin A in the diet.
(3) cabin pressure altitudes above 5,000 feet.

L-0027. What preparation should a pilot make to adapt the eyes for night flying?

(1) Wear sunglasses after sunset until ready for flight.
(2) Avoid red lights at least 30 minutes before the flight.
(3) Avoid bright white lights at least 30 minutes before the flight.

L-0028. One aid in increasing night vision effectivness would be to

(1) look directly at objects.
(2) force the eyes to view off center.
(3) increase intensity of interior lighting.

L-0029. What is the most effective way to use the eyes during night flight?

(1) Look only at far away, dim lights.
(2) Scan slowly to permit off-center viewing.
(3) Concentrate directly on each object for a few seconds.

L-0030. The most effective technique to use for detecting other aircraft at night is to

(1) turn the head and sweep the eyes rapidly over the entire visible region.
(2) avoid staring directly at the point where another aircraft is suspected to be flying.
(3) avoid scanning the region below the horizon so as to avoid the effect on ground light on the eyes.

**L-0031.** The best method to use when looking for other traffic at night is to

(1) look to the side of the object and scan slowly.
(2) scan the visual field very rapidly.
(3) look to the side of the object and scan rapidly.

**L-0032.** The most effective method of scanning for other aircraft for collision avoidance during nighttime hours is to use

(1) regularly spaced concentration on the 3-, 9-, and 12-o'clock positions.
(2) a series of short, regularly spaced eye movements to search each 30-degree sector.
(3) peripheral vision by scanning small sectors and utilizing off-center viewing.

**L-0033.** Prior to starting each maneuver, pilots should

(1) check altitude, airspeed, and heading indications.
(2) visually scan the entire area for collision avoidance.
(3) announce their intentions on the nearest CTAF.

**L-0034.** What is an effective way to prevent a collision hazard in the traffic pattern?

(1) Enter the pattern in a descent.
(2) Maintain the proper traffic pattern altitude and continually scan the area.
(3) Rely on radio reports from other aircraft who may be operating in the traffic pattern.

**L-0035.** Which technique should a pilot use to scan for traffic to the right and left during straight-and-level flight?

(1) Continuous sweeping of the windshield from right to left.
(2) Concentrate on relative movement detected in the peripheral vision area.
(3) Systematically focus on different segments of the sky for short intervals.

**L-0036.** How can you determine if another aircraft is on a collision course with your aircraft?

(1) The other aircraft will always appear to get larger and closer at a rapid rate.
(2) The nose of each aircraft is pointed at the same point in space.
(3) There will be no apparent relative motion between your aircraft and the other aircraft.

**L-0037.** The most effective method of scanning for other aircraft for collision avoidance during daylight hours is to use

(1) regularly spaced concentration on the 3-, 9-, and 12-o'clock positions.
(2) a series of short, regularly spaced eye movements to search each 10-degree sector.
(3) peripheral vision by scanning small sectors and utilizing off-center viewing.

**L-0038.** What effect does haze have on the ability to see traffic or terrain features during flight?

(1) Haze causes the eyes to focus at infinity.
(2) The eyes tend to overwork in haze and do not detect relative movement easily.
(3) All traffic or terrain features appear to be farther away than their actual distance.

L-0039. A state of temporary confusion resulting from misleading information being sent to the brain by various sensory organs is defined as

(1) spatial disorientation.
(2) hyperventilation.
(3) hypoxia.

L-0040. Most midair collision accidents occur during

(1) hazy days.
(2) clear days.
(3) cloudy nights.

L-0041. Which procedure is recommended to prevent or overcome spatial disorientation?

(1) Avoid steep turns and rough control movements.
(2) Rely entirely on the indications of the flight instruments.
(3) Reduce head and eye movements to the greatest extend possible.

L-0042. Pilots are more subject to spatial disorientation if

(1) they ignore the sensations of muscles and inner ear.
(2) body signals are used to interpret flight attitude.
(3) eyes are moved often in the process of cross-checking the flight instruments.

L-0043. The danger of spatial disorientation during flight in poor visual conditions may be reduced by

(1) shifting the eyes quickly between the exterior visual field and the instrument panel.
(2) having faith in the instruments rather than taking a chance on the sensory organs.
(3) leaning the body in the opposite direction of the motion of the aircraft.

L-0044. If a pilot experiences spatial disorientation during flight in a restricted visibility condition, the best way to overcome the effect is to

(1) rely upon the aircraft instrument indications.
(2) concentrate on yaw, pitch, and roll sensations.
(3) consciously slow the breathing rate until symptoms clear and then resume normal breathing rate.

L-0045. A rapid acceleration can create the illusion of being in a

(1) left turn.
(2) noseup attitude.
(3) nosedown attitude.

L-0046. An illusion, that an aircraft is at a higher altitude than it actually is, is produced by

(1) atmospheric haze.
(2) upsloping terrain.
(3) downsloping terrain.

L-0047. Who is responsible for determining whether a pilot is fit to fly for a particular flight, even though he or she holds a current medical certificate?

(1) The pilot.
(2) The medical examiner.
(3) The FA-1.

L-0048. What is the one common factor which affects most preventable accidents?

(1) Human error.
(2) Mechanical malfunction.
(3) Structural failure.

L-0049. What often leads to spatial disorientation or collision with ground/obstacles when flying under Visual Flight Rules (VFR)?

(1) Duck-under syndrome.
(2) Continual flight into instrument conditions.
(3) Getting behind the aircraft.

L-0050. What is it often called when a pilot pushes his or her capabilities and the aircraft's limits by trying to maintain visual contact with the terrain in low visibility and ceiling?

(1) Mind set.
(2) Peer pressure.
(3) Scud running.

L-0051. What is one of the neglected items when a pilot relies on short and long term memory for repetitive tasks?

(1) Situation awareness.
(2) Checklists.
(3) Flying outside the envelope.

L-0052. Consistent adherence to approved checklists is a sign of

(1) disciplined and competent pilot.
(2) pilot who lacks the required knowledge.
(3) low-tome pilot.

L-0053. To avoid missing important steps, always use the

(1) appropriate checklists.
(2) placarded airspeeds.
(3) airworthiness certificate.

L-0054. The positive three-step process in the exchange of flight controls between pilots includes these verbal steps: (a) You have the flight controls, (b) I have the flight controls, and (c)

(1) You have the flight controls.
(2) I have the aircraft.
(3) I have the flight controls.

L-0055. Risk management, as a part of aeronautical decision making (AMD) process, relies on which features to reduce the risk associated with each flight?

(1) Application of stress management and risk element procedures.
(2) The mental process of analyzing all information in a particular situation and making a timely decision on what action to take.
(3) Situational awareness, problem recognition, and good judgment.

L-0056. Hazardous attitudes occur to every pilot to some degree at some time. What are some of these hazardous attitudes?

(1) Poor risk management and lack of stress management.
(2) Antiauthority, impulsivity, macho, resignation, and invulnerability.
(3) Poor situational awareness, snap judgments, and lack of a decision making process.

L-0057. In the aeronautical decision making (ADM) process, what is the first step in neutralizing a hazardous attitude?

(1) Making a rational judgement.
(2) Recognizing hazardous thoughts.
(3) Recognizing the invulnerability of the situation.

L-0058. What is the typical behaviour when a pilot has a hazardous attitude, such as "Antiauthority"?

(1) Rules do not apply in this situation.
(2) I know what I am doing.
(3) Follow the rules.

L-0059. What is the typical behaviour when a pilot has a hazardous attitude, such as "Impulsivity"?

(1) Do it quickly to get it over with.
(2) It could happen to me.
(3) Not so fast, think first.

L-0060. What is the typical behaviour when a pilot has a hazardous attitude, such as "Invulnerability"?

(1) It will not happen to me.
(2) It could happen to me.
(3) It can not be that bad.

**L-0061.** What is the typical behaviour when a pilot has a hazardous attitude, such as "Macho"?

(1) Taking chances is foolish.
(2) I can do it.
(3) Nothing will happen.

**L-0062.** What is the typical behaviour when a pilot has a hazardous attitude, such as "Resignation"?

(1) I am not helpless.
(2) What is the use.
(3) Someone else is responsible.

**L-0063.** What is the antidote when a pilot has a hazardous attitude, such as "Impulsivity"?

(1) It could happen to me.
(2) Do it quickly to get it over with.
(3) Not so fast, think first.

**L-0064.** What is the antidote when a pilot has a hazardous attitude, such as "Antiauthority"?

(1) Rules do not apply in this situation.
(2) I know what I am doing.
(3) Follow the rules.

**L-0065.** What is the antidote when a pilot has the hazardous attitude of "Invulnerability"?

(1) It can not be that bad.
(2) It could happen to me.
(3) It will not happen to me.

**L-0066.** What is the antidote when a pilot has a hazardous attitude, such as "Macho"?

(1) It will not happen to me.
(2) It can not be that bad.
(3) It could happen to me.

**L-0067.** What is the antidote when a pilot has a hazardous attitude, such as "Resignation"?

(1) What is the use.
(2) Someone else is responsible.
(3) I am not helpless.

# CORRECT ANSWERS

| | | | | | |
|---|---|---|---|---|---|
| K-0001 = 3 | K-0002 = 2 | K-0003 = 4 | K-0004 = 4 | K-0005 = 2 | K-0006 = 4 |
| K-0007 = 2 | K-0008 = 1 | K-0009 = 3 | K-0010 = 3 | K-0011 = 3 | K-0012 = 2 |
| K-0013 = 4 | K-0014 = 1 | K-0015 = 1 | K-0016 = 4 | K-0017 = 4 | K-0018 = 4 |
| K-0019 = 4 | K-0020 = 2 | K-0021 = 4 | K-0022 = 1 | K-0023 = 1 | K-0024 = 1 |
| K-0025 = 1 | K-0026 = 2 | K-0027 = 1 | K-0028 = 4 | K-0029 = 3 | K-0030 = 4 |
| K-0031 = 3 | K-0032 = 2 | K-0033 = 2 | K-0034 = 1 | K-0035 = 4 | K-0036 = 4 |
| K-0037 = 3 | K-0038 = 3 | K-0039 = 1 | K-0040 = 4 | K-0041 = 4 | K-0042 = 3 |
| K-0043 = 1 | K-0044 = 3 | K-0045 = 2 | K-0046 = 3 | K-0047 = 2 | K-0048 = 1 |
| K-0049 = 3 | K-0050 = 4 | K-0051 = 3 | K-0052 = 1 | K-0053 = 3 | K-0054 = 2 |
| K-0055 = 3 | K-0056 = 2 | K-0057 = 1 | K-0058 = 3 | K-0059 = 2 | K-0060 = 3 |
| K-0061 = 2 | K-0062 = 2 | K-0063 = 1 | K-0064 = 3 | K-0065 = 2 | K-0066 = 1 |
| K-0067 = 1 | K-0068 = 3 | K-0069 = 3 | K-0070 = 1 | K-0071 = 2 | K-0072 = 2 |
| K-0073 = 1 | K-0074 = 4 | K-0075 = 3 | K-0076 = 2 | K-0077 = 2 | K-0078 = 3 |
| K-0079 = 2 | K-0080 = 2 | K-0081 = 1 | K-0082 = 4 | K-0083 = 3 | K-0084 = 2 |
| K-0085 = 1 | K-0086 = 2 | K-0087 = 4 | K-0088 = 3 | K-0089 = 4 | K-0090 = 4 |
| K-0091 = 3 | K-0092 = 2 | K-0093 = 1 | K-0094 = 1 | K-0095 = 2 | K-0096 = 2 |
| K-0097 = 3 | K-0098 = 1 | K-0099 = 1 | K-0100 = 4 | K-0101 = 4 | K-0102 = 2 |
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| K-0115 = 4 | K-0116 = 3 | K-0117 = 3 | K-0118 = 1 | K-0119 = 2 | K-0120 = 4 |
| K-0121 = 3 | K-0122 = 3 | K-0123 = 2 | K-0124 = 2 | K-0125 = 3 | K-0126 = 3 |
| K-0127 = 3 | K-0128 = 1 | K-0129 = 1 | K-0130 = 4 | K-0131 = 3 | K-0132 = 4 |
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| K-0145 = 3 | K-0146 = 1 | K-0147 = 2 | K-0148 = 3 | K-0149 = 4 | K-0150 = 4 |
| K-0151 = 2 | K-0152 = 1 | K-0153 = 4 | K-0154 = 4 | K-0155 = 1 | K-0156 = 2 |
| K-0157 = 1 | K-0158 = 2 | K-0159 = 1 | K-0160 = 2 | K-0161 = 3 | K-0162 = 2 |
| K-0163 = 1 | K-0164 = 2 | K-0165 = 1 | K-0166 = 2 | K-0167 = 3 | K-0168 = 1 |
| K-0169 = 3 | K-0170 = 1 | K-0171 = 1 | K-0172 = 4 | K-0173 = 2 | K-0174 = 4 |
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| K-0193 = 2 | K-0194 = 2 | K-0195 = 3 | K-0196 = 1 | K-0197 = 3 | K-0198 = 4 |
| K-0199 = 2 | K-0200 = 4 | K-0201 = 3 | K-0202 = 3 | K-0203 = 2 | K-0204 = 1 |
| K-0205 = 4 | K-0206 = 3 | K-0207 = 2 | K-0208 = 1 | K-0209 = 2 | K-0210 = 1 |
| K-0211 = 1 | K-0212 = 2 | K-0213 = 1 | K-0214 = 2 | K-0215 = 1 | K-0216 = 3 |
| K-0217 = 5 | K-0218 = 1 | K-0219 = 1 | | | |

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| A-0007 = 3 | A-0008 = 3 | A-0009 = 4 | A-0010 = 1 | A-0011 = 3 | A-0012 = 2 |
| A-0013 = 3 | A-0014 = 2 | A-0015 = 4 | A-0016 = 1 | A-0017 = 1 | A-0018 = 4 |
| A-0019 = 4 | A-0020 = 3 | A-0021 = 2 | A-0022 = 3 | A-0023 = 2 | A-0024 = 4 |
| A-0025 = 1 | A-0026 = 1 | A-0027 = 2 | A-0028 = 1 | A-0029 = 3 | A-0030 = 1 |
| A-0031 = 3 | A-0032 = 2 | A-0033 = 1 | A-0034 = 2 | A-0035 = 1 | A-0036 = 1 |
| A-0037 = 1 | A-0038 = 2 | A-0039 = 4 | A-0040 = 2 | A-0041 = 1 | A-0042 = 3 |
| A-0043 = 4 | A-0044 = 2 | A-0045 = 4 | A-0046 = 4 | A-0047 = 3 | A-0048 = 4 |
| A-0049 = 2 | A-0050 = 1 | A-0051 = 1 | A-0052 = 2 | A-0053 = 4 | A-0054 = 1 |
| A-0055 = 4 | A-0056 = 2 | A-0057 = 3 | A-0058 = 2 | A-0059 = 3 | A-0060 = 3 |

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| A-0067 = 3 | A-0068 = 4 | A-0069 = 3 | A-0070 = 1 | A-0071 = 3 | A-0072 = 1 |
| A-0073 = 3 | A-0074 = 4 | A-0075 = 1 | A-0076 = 4 | A-0077 = 1 | A-0078 = 1 |
| A-0079 = 2 | A-0080 = 2 | A-0081 = 2 | A-0082 = 1 | A-0083 = 2 | A-0084 = 4 |
| A-0085 = 4 | A-0086 = 1 | A-0087 = 1 | A-0088 = 1 | A-0089 = 1 | A-0090 = 2 |
| A-0091 = 2 | A-0092 = 2 | A-0093 = 1 | A-0094 = 1 | A-0095 = 1 | A-0096 = 2 |
| A-0097 = 4 | A-0098 = 2 | A-0099 = 1 | A-0100 = 4 | A-0101 = 2 | A-0102 = 2 |
| A-0103 = 1 | A-0104 = 4 | A-0105 = 3 | A-0106 = 3 | A-0107 = 3 | A-0108 = 3 |
| A-0109 = 3 | A-0110 = 1 | A-0111 = 2 | A-0112 = 4 | A-0113 = 4 | |

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| P-0007 = 2 | P-0008 = 4 | P-0009 = 2 | P-0010 = 3 | P-0011 = 2 | P-0012 = 2 |
| P-0013 = 2 | P-0014 = 1 | P-0015 = 3 | P-0016 = 1 | P-0017 = 1 | P-0018 = 3 |
| P-0019 = 4 | P-0020 = 2 | P-0021 = 2 | P-0022 = 4 | P-0023 = 4 | P-0024 = 3 |
| P-0025 = 3 | P-0026 = 2 | P-0027 = 2 | P-0028 = 2 | P-0029 = 2 | P-0030 = 2 |
| P-0031 = 2 | P-0032 = 1 | P-0033 = 3 | P-0034 = 1 | P-0035 = 1 | P-0036 = 4 |
| P-0037 = 1 | P-0038 = 2 | P-0039 = 1 | P-0040 = 4 | P-0041 = 3 | P-0042 = 3 |
| P-0043 = 3 | P-0044 = 2 | P-0045 = 2 | P-0046 = 1 | P-0047 = 3 | P-0048 = 2 |
| P-0049 = 2 | P-0050 = 1 | P-0051 = 3 | P-0052 = 3 | P-0053 = 2 | P-0054 = 4 |
| P-0055 = 4 | P-0056 = 4 | P-0057 = 4 | P-0058 = 2 | P-0059 = 2 | P-0060 = 1 |
| P-0061 = 1 | P-0062 = 3 | P-0063 = 4 | P-0064 = 3 | P-0065 = 2 | P-0066 = 2 |
| P-0067 = 3 | P-0068 = 4 | P-0069 = 2 | P-0070 = 2 | P-0071 = 1 | P-0072 = 2 |
| P-0073 = 1 | P-0074 = 2 | P-0075 = 4 | P-0076 = 4 | P-0077 = 4 | P-0078 = 3 |
| P-0079 = 4 | P-0080 = 1 | P-0081 = 2 | | | |

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| O-0007 = 1 | O-0008 = 1 | O-0009 = 4 | O-0010 = 3 | O-0011 = 1 | O-0012 = 3 |
| O-0013 = 4 | O-0014 = 3 | O-0015 = 3 | O-0016 = 4 | O-0017 = 1 | O-0018 = 3 |
| O-0019 = 2 | O-0020 = 1 | O-0021 = 2 | O-0022 = 1 | O-0023 = 3 | O-0024 = 2 |
| O-0025 = 4 | O-0026 = 1 | O-0027 = 1 | O-0028 = 2 | O-0029 = 4 | O-0030 = 1 |
| O-0031 = 4 | O-0032 = 2 | O-0033 = 1 | O-0034 = 4 | O-0035 = 2 | O-0036 = 1 |
| O-0037 = 1 | O-0038 = 2 | O-0039 = 2 | O-0040 = 4 | O-0041 = 3 | O-0042 = 1 |
| O-0043 = 2 | O-0044 = 1 | O-0045 = 3 | O-0046 = 3 | O-0047 = 2 | O-0048 = 3 |
| O-0049 = 4 | O-0050 = 2 | O-0051 = 3 | O-0052 = 1 | O-0053 = 1 | O-0054 = 1 |
| O-0055 = 3 | O-0056 = 2 | O-0057 = 3 | O-0058 = 3 | O-0059 = 1 | O-0060 = 1 |
| O-0061 = 1 | O-0062 = 2 | O-0063 = 2 | O-0064 = 1 | O-0065 = 3 | O-0066 = 1 |
| O-0067 = 2 | O-0068 = 1 | O-0069 = 3 | O-0070 = 3 | O-0071 = 3 | O-0072 = 2 |
| O-0073 = 1 | O-0074 = 3 | O-0075 = 3 | O-0076 = 1 | O-0077 = 1 | O-0078 = 3 |
| O-0079 = 3 | O-0080 = 2 | O-0081 = 3 | O-0082 = 4 | O-0083 = 2 | O-0084 = 3 |
| O-0085 = 1 | O-0086 = 3 | O-0087 = 4 | O-0088 = 1 | O-0089 = 3 | O-0090 = 1 |
| O-0091 = 2 | O-0092 = 3 | O-0093 = 4 | O-0094 = 1 | O-0095 = 1 | O-0096 = 1 |
| O-0097 = 3 | O-0098 = 3 | O-0099 = 2 | O-0100 = 4 | O-0101 = 1 | O-0102 = 3 |
| O-0103 = 1 | O-0104 = 2 | O-0105 = 2 | O-0106 = 1 | O-0107 = 2 | O-0108 = 1 |
| O-0109 = 3 | O-0110 = 2 | O-0111 = 2 | O-0112 = 2 | O-0113 = 2 | O-0114 = 3 |
| O-0115 = 1 | O-0116 = 3 | O-0117 = 3 | O-0118 = 3 | O-0119 = 2 | O-0120 = 4 |
| O-0121 = 3 | O-0122 = 3 | O-0123 = 2 | O-0124 = 2 | O-0125 = 2 | O-0126 = 1 |
| O-0127 = 3 | O-0128 = 2 | O-0129 = 3 | O-0130 = 1 | O-0131 = 2 | O-0132 = 2 |
| O-0133 = 2 | O-0134 = 1 | O-0135 = 3 | O-0136 = 3 | O-0137 = 3 | O-0138 = 1 |

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| O-0145 = 4 | O-0146 = 3 | O-0147 = 4 | O-0148 = 3 | O-0149 = 4 | O-0150 = 1 |
| O-0151 = 4 | O-0152 = 3 | O-0153 = 2 | O-0154 = 3 | O-0155 = 2 | O-0156 = 1 |
| O-0157 = 2 | O-0158 = 4 | O-0159 = 3 | O-0160 = 1 | O-0161 = 3 | O-0162 = 1 |
| O-0163 = 1 | O-0164 = 3 | O-0165 = 2 | O-0166 = 4 | O-0167 = 2 | O-0168 = 4 |
| O-0169 = 3 | O-0170 = 3 | O-0171 = 2 | O-0172 = 4 | O-0173 = 3 | O-0174 = 2 |
| O-0175 = 4 | O-0176 = 2 | O-0177 = 3 | O-0178 = 3 | | |

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| N-0001 = 2 | N-0002 = 2 | N-0003 = 1 | N-0004 = 3 | N-0005 = 3 | N-0006 = 3 |
| N-0007 = 2 | N-0008 = 4 | N-0009 = 2 | N-0010 = 4 | N-0011 = 3 | N-0012 = 2 |
| N-0013 = 4 | N-0014 = 3 | N-0015 = 2 | N-0016 = 3 | N-0017 = 2 | N-0018 = 3 |
| N-0019 = 1 | N-0020 = 4 | N-0021 = 3 | N-0022 = 4 | N-0023 = 3 | N-0024 = 2 |
| N-0025 = 1 | N-0026 = 1 | N-0027 = 2 | N-0028 = 3 | N-0029 = 3 | N-0030 = 4 |
| N-0031 = 2 | N-0032 = 1 | N-0033 = 2 | N-0034 = 3 | N-0035 = 2 | N-0036 = 1 |
| N-0037 = 4 | N-0038 = 1 | N-0039 = 1 | N-0040 = 2 | N-0041 = 4 | N-0042 = 4 |
| N-0043 = 2 | N-0044 = 2 | N-0045 = 3 | N-0046 = 4 | N-0047 = 1 | N-0048 = 3 |
| N-0049 = 1 | N-0050 = 3 | N-0051 = 2 | N-0052 = 1 | N-0053 = 1 | N-0054 = 1 |
| N-0055 = 4 | N-0056 = 2 | N-0057 = 4 | N-0058 = 3 | N-0059 = 2 | N-0060 = 3 |
| N-0061 = 2 | N-0062 = 2 | N-0063 = 1 | N-0064 = 2 | N-0065 = 4 | N-0066 = 2 |
| N-0067 = 1 | N-0068 = 3 | N-0069 = 1 | N-0070 = 4 | N-0071 = 4 | N-0072 = 2 |
| N-0073 = 2 | N-0074 = 1 | N-0075 = 4 | N-0076 = 4 | N-0077 = 3 | N-0078 = 3 |
| N-0079 = 2 | N-0080 = 3 | N-0081 = 3 | N-0082 = 2 | N-0083 = 1 | N-0084 = 1 |
| N-0085 = 2 | N-0086 = 2 | N-0087 = 2 | N-0088 = 4 | N-0089 = 3 | N-0090 = 4 |
| N-0091 = 4 | N-0092 = 2 | N-0093 = 3 | N-0094 = 2 | N-0095 = 1 | N-0096 = 2 |
| N-0097 = 2 | N-0098 = 4 | N-0099 = 2 | N-0100 = 2 | N-0101 = 2 | N-0102 = 1 |
| N-0103 = 3 | N-0104 = 4 | N-0105 = 1 | N-0106 = 2 | N-0107 = 1 | N-0108 = 2 |
| N-0109 = 2 | N-0110 = 2 | N-0111 = 4 | N-0112 = 3 | N-0113 = 4 | N-0114 = 1 |
| N-0115 = 1 | N-0116 = 4 | N-0117 = 3 | N-0118 = 3 | N-0119 = 2 | N-0120 = 1 |
| N-0121 = 1 | N-0122 = 3 | N-0123 = 3 | N-0124 = 4 | N-0125 = 3 | N-0126 = 1 |
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| N-0145 = 3 | N-0146 = 3 | N-0147 = 1 | N-0148 = 2 | N-0149 = 3 | N-0150 = 3 |
| N-0151 = 3 | N-0152 = 2 | N-0153 = 3 | N-0154 = 1 | N-0155 = 2 | N-0156 = 1 |
| N-0157 = 2 | N-0158 = 3 | N-0159 = 2 | N-0160 = 3 | N-0161 = 4 | N-0162 = 1 |
| N-0163 = 3 | N-0164 = 4 | N-0165 = 1 | N-0166 = 3 | N-0167 = 3 | N-0168 = 2 |
| N-0169 = 2 | N-0170 = 1 | N-0171 = 1 | N-0172 = 3 | N-0173 = 3 | N-0174 = 3 |
| N-0175 = 3 | N-0176 = 2 | N-0177 = 2 | N-0178 = 2 | N-0179 = 4 | N-0180 = 1 |
| N-0181 = 2 | N-0182 = 1 | N-0183 = 3 | N-0184 = 1 | N-0185 = 3 | N-0186 = 4 |
| N-0187 = 1 | N-0188 = 3 | N-0189 = 3 | N-0190 = 4 | N-0191 = 4 | N-0192 = 1 |
| N-0193 = 1 | N-0194 = 3 | N-0195 = 2 | N-0196 = 1 | N-0197 = 3 | N-0198 = 2 |
| N-0199 = 2 | N-0200 = 3 | N-0201 = 2 | N-0202 = 3 | N-0203 = 3 | |

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| M-0007 = 1 | M-0008 = 3 | M-0009 = 1 | M-0010 = 2 | M-0011 = 3 | M-0012 = 3 |
| M-0013 = 2 | M-0014 = 2 | M-0015 = 4 | M-0016 = 1 | M-0017 = 1 | M-0018 = 1 |
| M-0019 = 1 | M-0020 = 3 | M-0021 = 1 | M-0022 = 4 | M-0023 = 2 | M-0024 = 2 |
| M-0025 = 3 | M-0026 = 1 | M-0027 = 2 | M-0028 = 1 | M-0029 = 1 | M-0030 = 1 |

M-0031 = 1 M-0032 = 1 M-0033 = 3 M-0034 = 2 M-0035 = 3 M-0036 = 2
M-0037 = 3 M-0038 = 3 M-0039 = 3 M-0040 = 1 M-0041 = 1 M-0042 = 2
M-0043 = 1 M-0044 = 2 M-0045 = 2 M-0046 = 2 M-0047 = 2 M-0048 = 3
M-0049 = 1 M-0050 = 3 M-0051 = 2 M-0052 = 4 M-0053 = 3 M-0054 = 4
M-0055 = 2 M-0056 = 4 M-0057 = 1 M-0058 = 1 M-0059 = 3 M-0060 = 2
M-0061 = 3 M-0062 = 4 M-0063 = 4 M-0064 = 3 M-0065 = 3 M-0066 = 4
M-0067 = 1 M-0068 = 2 M-0069 = 4 M-0070 = 2 M-0071 = 3 M-0072 = 4

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Z-0001 = 3 Z-0002 = 3 Z-0003 = 3 Z-0004 = 2 Z-0005 = 2 Z-0006 = 4
Z-0007 = 1 Z-0008 = 2 Z-0009 = 2 Z-0010 = 4 Z-0011 = 4 Z-0012 = 4
Z-0013 = 1 Z-0014 = 3 Z-0015 = 1 Z-0016 = 2 Z-0017 = 1 Z-0018 = 1
Z-0019 = 4 Z-0020 = 3 Z-0021 = 3 Z-0022 = 2 Z-0023 = 2 Z-0024 = 2
Z-0025 = 3 Z-0026 = 3 Z-0027 = 4 Z-0028 = 3 Z-0029 = 2 Z-0030 = 3
Z-0031 = 3 Z-0032 = 1 Z-0033 = 3 Z-0034 = 2 Z-0035 = 2 Z-0036 = 2
Z-0037 = 1 Z-0038 = 3 Z-0039 = 3 Z-0040 = 3 Z-0041 = 1 Z-0042 = 3
Z-0043 = 2 Z-0044 = 3 Z-0045 = 1 Z-0046 = 2 Z-0047 = 4 Z-0048 = 2
Z-0049 = 2 Z-0050 = 2 Z-0051 = 1 Z-0052 = 3 Z-0053 = 1 Z-0054 = 4
Z-0055 = 4 Z-0056 = 2 Z-0057 = 2 Z-0058 = 3 Z-0059 = 3 Z-0060 = 2
Z-0061 = 1 Z-0062 = 3 Z-0063 = 1 Z-0064 = 4 Z-0065 = 4 Z-0066 = 2
Z-0067 = 3 Z-0068 = 2 Z-0069 = 1 Z-0070 = 2 Z-0071 = 1 Z-0072 = 3
Z-0073 = 2 Z-0074 = 1 Z-0075 = 3 Z-0076 = 4 Z-0077 = 1 Z-0078 = 3
Z-0079 = 3 Z-0080 = 4 Z-0081 = 1 Z-0082 = 1 Z-0083 = 2 Z-0084 = 1
Z-0085 = 4 Z-0086 = 3 Z-0087 = 1 Z-0088 = 1 Z-0089 = 3 Z-0090 = 3
Z-0091 = 3 Z-0092 = 3 Z-0093 = 1 Z-0094 = 2 Z-0095 = 3 Z-0096 = 1
Z-0097 = 4 Z-0098 = 3 Z-0099 = 3 Z-0100 = 2 Z-0101 = 3 Z-0102 = 2
Z-0103 = 4 Z-0104 = 4 Z-0105 = 1 Z-0106 = 2 Z-0107 = 4

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R-0001 = 4 R-0002 = 2 R-0003 = 4 R-0004 = 2 R-0005 = 4 R-0006 = 1
R-0007 = 4 R-0008 = 3 R-0009 = 4 R-0010 = 4 R-0011 = 1 R-0012 = 1
R-0013 = 1 R-0014 = 1 R-0015 = 1 R-0016 = 3 R-0017 = 1 R-0018 = 1
R-0019 = 3 R-0020 = 2 R-0021 = 2 R-0022 = 2 R-0023 = 4 R-0024 = 1
R-0025 = 3 R-0026 = 2 R-0027 = 1 R-0028 = 4 R-0029 = 3 R-0030 = 1
R-0031 = 3 R-0032 = 2 R-0033 = 3 R-0034 = 1 R-0035 = 4 R-0036 = 3
R-0037 = 2 R-0038 = 2 R-0039 = 2 R-0040 = 4 R-0041 = 4 R-0042 = 2
R-0043 = 2 R-0044 = 3 R-0045 = 4 R-0046 = 1 R-0047 = 4 R-0048 = 4
R-0049 = 2 R-0050 = 2 R-0051 = 2 R-0052 = 1 R-0053 = 4 R-0054 = 4
R-0055 = 3 R-0056 = 1 R-0057 = 4 R-0058 = 2 R-0059 = 1 R-0060 = 2
R-0061 = 3 R-0062 = 4 R-0063 = 4 R-0064 = 2 R-0065 = 2 R-0066 = 3
R-0067 = 3 R-0068 = 4 R-0069 = 1 R-0070 = 2 R-0071 = 1 R-0072 = 4
R-0073 = 3 R-0074 = 1 R-0075 = 3 R-0076 = 1 R-0077 = 2 R-0078 = 4
R-0079 = 2 R-0080 = 3 R-0081 = 3 R-0082 = 4 R-0083 = 1 R-0084 = 1
R-0085 = 4 R-0086 = 4 R-0087 = 1 R-0088 = 1 R-0089 = 2 R-0090 = 4
R-0091 = 1 R-0092 = 4 R-0093 = 4 R-0094 = 1 R-0095 = 1 R-0096 = 2
R-0097 = 3 R-0098 = 3 R-0099 = 4 R-0100 = 3 R-0101 = 3 R-0102 = 2
R-0103 = 4

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L-0001 = 1 L-0002 = 1 L-0003 = 3 L-0004 = 1 L-0005 = 1 L-0006 = 3
L-0007 = 1 L-0008 = 3 L-0009 = 1 L-0010 = 1 L-0011 = 1 L-0012 = 2

| | | | | | |
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| L-0013 = 3 | L-0014 = 1 | L-0015 = 2 | L-0016 = 3 | L-0017 = 2 | L-0018 = 2 |
| L-0019 = 1 | L-0020 = 1 | L-0021 = 3 | L-0022 = 1 | L-0023 = 2 | L-0024 = 1 |
| L-0025 = 3 | L-0026 = 3 | L-0027 = 3 | L-0028 = 2 | L-0029 = 2 | L-0030 = 2 |
| L-0031 = 1 | L-0032 = 3 | L-0033 = 2 | L-0034 = 2 | L-0035 = 3 | L-0036 = 3 |
| L-0037 = 2 | L-0038 = 3 | L-0039 = 1 | L-0040 = 2 | L-0041 = 2 | L-0042 = 2 |
| L-0043 = 2 | L-0044 = 1 | L-0045 = 2 | L-0046 = 2 | L-0047 = 1 | L-0048 = 1 |
| L-0049 = 2 | L-0050 = 3 | L-0051 = 2 | L-0052 = 1 | L-0053 = 1 | L-0054 = 1 |
| L-0055 = 3 | L-0056 = 2 | L-0057 = 2 | L-0058 = 2 | L-0059 = 1 | L-0060 = 1 |
| L-0061 = 2 | L-0062 = 2 | L-0063 = 3 | L-0064 = 3 | L-0065 = 2 | L-0066 = 3 |
| L-0067 = 3 | | | | | |