|  |  |
| --- | --- |
| Where may an aircraft's operating limitations be found?  A- On the Airworthiness Certificate.  B- In the current, FAA-approved flight manual, approved manual material, markings, and placards, or any combination thereof.  C- In the aircraft airframe and engine logbooks. | Answer B. GFDPP 2-10 (FAR 91.9)  Operating limits can be found in any of these sources. |
|  | To minimize the side loads placed on the landing gear during touchdown, the pilot should keep the  A- direction of motion of the aircraft parallel to the runway.  B- longitudinal axis of the aircraft parallel to the direction of its motion.  C- downwind wing lowered sufficiently to eliminate the tendency for the aircraft to drift. | Answer B. AFH  Keeping the longitudinal axis parallel to the direction of motion ensures that the main gear will touchdown and roll as designed, parallel to the aircraft's direction of travel. Side loading the gear is not only bad for the aircraft structurally, but can result in the aircraft rolling away from the runway centerline on touchdown. |
|  | Where may an aircraft's operating limitations be found if the aircraft has an Experimental or Special light-sport airworthiness certificate?  A-Attached to the Airworthiness Certificate.  B- In the current, FAA-approved flight manual.  C- In the aircraft airframe and engine logbooks. | Answer A.   Operating limitations for experimental aircraft are actually part of Form 8130-7, which is the special airworthiness certificate. As with all airworthiness certificates, this one must be carried in the aircraft, which ensures the operating limitations of an experimental or light sport aircraft are available to the PIC |
|  | Excessively high engine temperatures will  A- cause damage to heat-conducting hoses and warping of the cylinder cooling fins.  B- cause loss of power, excessive oil consumption, and possible permanent internal engine damage.  C- not appreciably affect an aircraft engine. | Answer B. GFDPP 2-34, PHB  High temperature can cause detonation and a resulting loss of power, excessive oil consumption, and engine damage, including scoring of the cylinders and damage to pistons, rings, and valves. |
|  | If the engine oil temperature and cylinder head temperature gauges have exceeded their normal operating range, the pilot may have been operating with  A-the mixture set too rich.  B- higher-than-normal oil pressure.  C- too much power and with the mixture set too lean. | Answer C. GFDPP 2-35, PHB  With high power settings and the mixture set too lean, overheating can result. This can be indicated by a high engine oil temperature and cylinder head temperature. |
|  | One purpose of the dual ignition system on an aircraft engine is to provide for  A- improved engine performance.  B- uniform heat distribution.  C- balanced cylinder head pressure. | Answer A. GFDPP 2-24, AFH  Dual ignition systems fire two spark plugs, which improves combustion of the fuel/air mixture and results in slightly more power. |
|  | On aircraft equipped with fuel pumps, when is the auxiliary electric driven pump used?  A- In the event engine-driven fuel pump fails.  B-All the time to aid the engine-driven fuel pump.  C- Constantly except in starting the engine. | Answer A. GFDPP 2-27, PHB  The auxiliary electric pump is a backup for an engine-driven pump. Although labeling, procedures for use, and control switches differ between manufacturers, these auxiliary pumps can cause operational problems if used inappropriately. In Some systems, continuous use of both the auxiliary pump and the engine-driven pump can cause an excessively rich mixture. Besides the back-up function, auxiliary pumps are commonly used to provide fuel under pressure for engine starting. |
|  | The operating principle of float-type carburetors is  based on the  A- automatic metering of air at the venturi as the aircraft gains altitude.  B- difference in air pressure at the venturi throat and the air inlet.  C- increase in air velocity in the throat of a venturi causing an increase in air pressure. | Answer B. GFDPP 2-18, PHB  The decreased pressure caused by air flowing rapidly through the venturi tube draws fuel from the float chamber. |
|  | The basic purpose of adjusting the fuel/air mixture at  altitude is to  A- decrease the amount of fuel in the mixture in order to compensate for increased air density.  B- decrease the fuel flow in order to compensate for decreased air density.  C- increase the amount of fuel in the mixture to compensate for the decrease in pressure and density of the air. | Answer B. GFDPP 2-19, AFH  If fuel flow is not decreased with altitude, the mixture becomes too rich with fuel. Therefore, the fuel mixture must be leaned to maintain the proper fuel/air ratio. |
|  | 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?  A- Check the results obtained with a leaner setting of the mixture.  B- Taxi back to the flight line for a maintenance check.  C- Reduce manifold pressure to control detonation. | Answer A. GFDPP 2-19, AFH  In this case, engine roughness is probably caused by the mixture set too rich for the high altitude. When the carburetor heat is turned on, the warmer air entering the carburetor is less dense, and the mixture is further enriched. As a result, the engine roughness increases. The problem can usually be corrected by leaning the mixture. |

|  |  |
| --- | --- |
| 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?  A- The fuel/air mixture may become excessively lean.  B- 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.  C- The excessively rich mixture will create higher cylinder head temperatures and may cause detonation. | Answer A. GFDPP 2-19, AFH  With a decrease in altitude, air density increases. This means you will have to enrich the mixture as you descend, otherwise the fuel/air mixture can become excessively lean. |
|  | Which condition is most favorable to the development  of carburetor icing?  A-Any temperature below freezing and a relative humidity of less than 50 percent.  B- Temperature between 32 and 50°F and low humidity.  C- Temperature between 20 and 70°F and high humidity. | Answer C. GFDPP 2-19, PHB  Carburetor icing is most likely between 20° and 70°F in high humidity conditions. |
|  | The possibility of carburetor icing exists even when the  ambient air temperature is as  A- high as 70°F and the relative humidity is high.  B- high as 95°F and there is visible moisture.  C- low as 0°F and the relative humidity is high. | Answer A. GFDPP 2-20, PHB  Carburetor icing is most probable between 20° and 70°F with high humidity or visible moisture. |
|  | 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  A- a drop in oil temperature and cylinder head temperature.  B- engine roughness.  C- loss of RPM. | Answer C. GFDPP 2-21, PHB  The restricted airflow through the carburetor causes an enriched mixture and loss of RPM. |
|  | Applying carburetor heat will  A- result in more air going through the carburetor.  B- enrich the fuel/air mixture.  C- not affect the fuel/air mixture | Answer B. GFDPP 2-20,21, PHB  When the carburetor heat is turned on, the warmer air entering the carburetor is less dense, and the mixture is enriched. |
|  | What change occurs in the fuel/air mixture when carburetor heat is applied?  A- A decrease in RPM results from the lean mixture.  B- The fuel/air mixture becomes richer.  C- The fuel/air mixture becomes leaner. | Answer B. GFDPP 2-20,21, PHB  When the carburetor heat is turned on, the warmer air entering the carburetor is less dense, and the mixture is enriched. |
|  | An abnormally high engine oil temperature indication may be caused by  A- the oil level being too low.  B- operating with a too high viscosity oil.  C- operating with an excessively rich mixture. | Answer A. GFDPP 2-33, PHB  If the oil level is too low, it can cause high engine oil temperatures. |
|  | What is one procedure to aid in cooling an engine that is overheating?  A- Enrichen the fuel mixture.  B- Increase the RPM.  C-Reduce the airspeed. | Answer A. GFDPP 2-35, PHB  A richer fuel mixture burns at a slightly lower temperature and helps cool the engine. |
|  | For internal cooling, reciprocating aircraft engines are especially dependent on  A- a properly functioning thermostat.  B- air flowing over the exhaust manifold.  C- the circulation of lubricating oil. | Answer C. GFDPP 2-32, PHB  Engine oil lubricates moving parts, reduces friction, and removes some of the heat from the cylinders. |
|  | If the grade of fuel used in an aircraft engine is lower than specified for the engine, it will most likely cause  A- a mixture of fuel and air that is not uniform in all cylinders.  B- lower cylinder head temperatures.  C- detonation. | Answer C. GFDPP 2-26, PHB  The higher the grade of fuel, the more pressure it can withstand without detonating. Conversely, lower fuel grades are more prone to detonation. |

|  |  |
| --- | --- |
| Detonation occurs in a reciprocating aircraft engine when  A- the spark plugs are fouled or shorted out or the wiring is defective.  B- hot spots in the combustion chamber ignite the fuel/ air mixture in advance of normal ignition.  C- the unburned charge in the cylinders explodes instead of burning normally | Answer C. GFDPP 2-25, PHB  Detonation occurs when the fuel/air mixture suddenly explodes in the cylinders instead of burning smoothly. |
|  | Detonation may occur at high-power settings when  A- the fuel mixture ignites instantaneously instead of burning progressively and evenly.  B- an excessively rich fuel mixture causes an explosive gain in power.  C- the fuel mixture is ignited too early by hot carbon deposits in the cylinder. | Answer A. GFDPP-2-25, PHB  Detonation occurs when the fuel/air mixture suddenly explodes in the cylinders instead of burning smoothly. Detonation is caused by excessively lean mixtures while hot spots in the cylinder describes pre-ignition. |
|  | If a pilot suspects that the engine (with a fixed-pitch propeller) is detonating during climb-out after takeoff, the initial corrective action to take would be to  A- lean the mixture.  B- lower the nose slightly to increase airspeed.  C- apply carburetor heat. | Answer B. GFDPP 2-26, PHB  Detonation can occur when the engine overheats. One action to help cool the engine is to increase airspeed, thus increasing the cooling airflow around the engine. |
|  | The uncontrolled firing of the fuel/air charge in advance of normal spark ignition is known as  A- combustion.  B- pre-ignition.  C- detonation. | Answer B. GFDPP 2-26, PHB  Pre-ignition occurs when the fuel/air mixture ignites too soon. |
|  | Which would most likely cause the cylinder head temperature and engine oil temperature gauges to exceed their normal operating ranges?  A- Using fuel that has a lower-than-specified fuel rating.  B- Using fuel that has a higher-than-specified fuel rating.  C- Operating with higher-than-normal oil pressure. | Answer A. GFDPP 2-30, PHB  Lower grade fuels will detonate under less pressure. Using a lower fuel rating than specified can cause excessive engine temperatures. |
|  | What type fuel can be substituted for an aircraft if the recommended octane is not available?  A- The next higher octane aviation gas.  B- The next lower octane aviation gas.  C- Unleaded automotive gas of the same octane rating. | Answer A. GFDPP 2-30, PHB  If the manufacturer's recommendations are followed, the next higher grade of fuel may normally be used. |
|  | Filling the fuel tanks after the last flight of the day is considered a good operating procedure because this will A- force any existing water to the top of the tank away from the fuel lines to the engine. B- prevent expansion of the fuel by eliminating airspace in the tanks. C- prevent moisture condensation by eliminating airspace in the tanks. | Answer C. GFDPP 2-29, PHB) As the airplane cools overnight, water condenses in the tanks from vapor in the air and enters the fuel. Filling the tanks eliminates the air space and prevents condensation. |
|  | For internal cooling, reciprocating aircraft engines are especially dependent on  A- a properly functioning thermostat.  B- air flowing over the exhaust manifold.  C- the circulation of lubricating oil. | Answer C. GFDPP 2-32, PHB  Engine oil lubricates moving parts, reduces friction, and removes some of the heat from the cylinders. |
|  | An abnormally high engine oil temperature indication may be caused by  A- the oil level being too low.  B- operating with a too high viscosity oil.  C- operating with an excessively rich mixture. | Answer A. GFDPP 2-33, PHB  If the oil level is too low, it can cause high engine oil temperatures. |
|  | A precaution for the operation of an engine equipped with a constant-speed propeller is to  A- avoid high RPM settings with high manifold pressure.  B- avoid high manifold pressure settings with low RPM.  C- always use a rich mixture with high RPM settings. | Answer B. GFDPP 2-39, PHB  For a given RPM setting, there is a maximum allowable manifold pressure. Generally, high manifold pressures with low RPM should be avoided to prevent internal stress within the engine. |

|  |  |
| --- | --- |
| What is one procedure to aid in cooling an engine that is overheating?  A- Enrichen the fuel mixture.  B- Increase the RPM.  C-Reduce the airspeed. | Answer A. GFDPP 2-35, PHB  A richer fuel mixture burns at a slightly lower temperature and helps cool the engine. |
|  | What action can a pilot take to aid in cooling an engine that is overheating during a climb?  A- Reduce rate of climb and increase airspeed.  B- Reduce climb speed and increase RPM.  C- Increase climb speed and increase RPM. | Answer A. GFDPP 2-35, PHB  Reducing the rate of climb and increasing airspeed will increase the cooling airflow around the engine. |
|  | How is engine operation controlled on an engine equipped with a constant-speed propeller?  A- The throttle controls power output as registered on the manifold pressure gauge and the propeller control regulates engine RPM.  B- The throttle controls power output as registered on the manifold pressure gauge and the propeller control regulates a constant blade angle.  C- The throttle controls engine RPM as registered on the tachometer and the mixture control regulates the power output. | Answer A. GFDPP 2-38, PHB  The throttle controls the power output of the engine, which is indicated on the manifold pressure gauge. The propeller control changes the pitch of the propeller blades, thus controlling engine RPM, which is indicated on the tachometer. |
|  | What is an advantage of a constant-speed propeller?  A- Permits the pilot to select and maintain a desired cruising speed.  B- Permits the pilot to select the blade angle for the most efficient performance.  C- Provides a smoother operation with stable RPM and eliminates vibrations. | Answer B. GFDPP 2-38, PHB  By selecting the proper blade angle, the pilot can convert a high percentage of engine power into thrust over a wide range of RPM and airspeed combinations. This allows the most efficient performance to be gained from the engine. |
|  | What should be the first action after starting an aircraft engine?  A-Adjust for proper RPM and check for desired indications on the engine gauges.  B- Place the magneto or ignition switch momentarily in the OFF position to check for proper grounding.  C- Test each brake and the parking brake. | Answer A. GFDPP 2-33, PHB  Immediately after starting an engine, set the proper RPM and check engine gauges for proper indications. |
|  | Should it become necessary to handprop an airplane engine, it is extremely important that a competent pilot  A- call "contact" before touching the propeller.  B- be at the controls in the cockpit.  C- be in the cockpit and call out all commands. | Answer B. GFDPP 2-39, PHB  When hand-propping an airplane, a competent pilot must be at the controls to prevent the airplane from moving and to set the engine controls properly. |
|  | Excessively high engine temperatures, either in the air or on the ground, will  A- increase fuel consumption and may increase power due to the increased heat.  B- result in damage to heat-conducting hoses and warping of cylinder cooling fans.  C- cause loss of power, excessive oil consumption, and possible permanent internal engine damage. | Answer C. GFDPP 2-34  High temperatures can cause detonation and a resulting loss of power, excessive oil consumption, and engine damage, including scoring of the cylinders and damage to piston, rings, and valves. |
|  | 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  A- fuel strainer drain.  B- lowest point in the fuel system.  C- fuel strainer drain and the fuel tank sumps. | Answer C. GFDPP 2-29, PHB  When the fuel strainer is being drained, water in the tank may not appear until all the fuel has been drained from the lines leading to the tank. Therefore, drain enough fuel from the fuel strainer to be certain that fuel is being drained from the tank. The amount will depend on the length of the fuel line from the tank to the drain. Water may also remain in the fuel tank even after the fuel strainer has ceased to show any trace of water. This residual water can be removed only by draining the fuel tank sump drains. |
|  | Which V-speed represents maneuvering speed?  A-Va.  B— Vlo.  C- Vne. | Answer A. GFDPP 2-53, FAR 1.2  VA is defined as the design maneuvering speed. |
|  | If an altimeter setting is not available before flight, to which altitude should the pilot adjust the altimeter?  A- The elevation of the nearest airport corrected to mean sea level.  B- The elevation of the departure area.  C- Pressure altitude corrected for nonstandard temperature. | Answer B. GFDPP 2-57, FAR 91.121  If unable to obtain a local altimeter setting, you should set the altimeter to the field elevation prior to departure. |

|  |  |
| --- | --- |
| Prior to takeoff, the altimeter should be set to which  altitude or altimeter setting?   A- The current local altimeter setting, if available, or the departure airport elevation.  B- The corrected density altitude of the departure airport.  C-The corrected pressure altitude for the departure airport. | Answer A. GFDPP 2-57, FAR 91.121  If unable to obtain a local altimeter setting, you should set the altimeter to the field elevation prior to departure. |
|  | If the pitot tube and outside static vents become  clogged, which instruments would be affected?  A- The altimeter, airspeed indicator, and tum-and-slip indicator.  B- The altimeter, airspeed indicator, and vertical speed indicator.  C- The altimeter, attitude indicator, and tum-and-slip indicator. | Answer B. GFDPP 2-61, PHB  The altimeter, the airspeed indicator, and the vertical speed indicator all use static air and would therefore be affected. |
|  | Which instrument will become inoperative if the pitot tube becomes clogged?  A- Altimeter.  B- Vertical speed.  C- Airspeed Indicator | Answer C. GFDPP 2-61, PHB  The airspeed indicator operates by sensing ram air (impact pressure) in the pitot tube. |
|  | Which instrument(s) will become inoperative if the static vents become clogged?  A- Airspeed only.  B-Altimeter only.  C-Airspeed, altimeter, and vertical speed. | Answer C. GFDPP 2-61, PHB  The altimeter, the airspeed indicator, and the vertical speed indicator all use static air and would therefore be affected. |
|  | Altimeter setting is the value to which the barometric pressure scale of the altimeter is set so the altimeter indicates  A- calibrated altitude at field elevation.  B- absolute altitude at field elevation.  C- true altitude at field elevation. | Answer C. GFDPP 2-57, AW  When the current altimeter setting is set on the ground, the altimeter reads true altitude of the field, which is the actual height above mean sea level. |
|  | How do variations in temperature affect the altimeter?  A- Pressure levels are raised on warm days and the indicated altitude is lower than true altitude.  B- Higher temperatures expand the pressure levels and the indicated altitude is higher than true altitude.  C- Lower temperatures lower the pressure levels and the indicated altitude is lower than true altitude. | Answer A. GFDPP 2-60, PHB  Because atmospheric pressure levels are raised on warm days, the aircraft will be at a higher altitude than indicated. In other words, the indicated altitude is lower than true altitude. |
|  | What is true altitude?  A- The vertical distance of the aircraft above sea level.  B- The vertical distance of the aircraft above the surface.  C- The height above the standard datum plane. | Answer A. GFDPP 2-57, PHB  True altitude is the actual height (vertical distance) above mean sea level. |
|  | (Refer to figure 3.) Altimeter 1 indicates  A- 500 feet.  B- 1,500 feet.  C- 10,500 feet. | Answer C. GFDPP 2-55, PHB  The small 10,000' pointer is just beyond the 1, indicating that the altitude is above 10,000 feet. The wide 1,000' pointer is between 0 and 1, which indicates less than 1,000 feet. Finally, the 100' pointer is on 5. The altimeter reading is 10,500 feet. |
|  | (Refer to figure 3.) Altimeter 2 indicates  A- 1,500 feet.  B- 4,500 feet.  C- 14,500 feet. | Answer C. GFDPP 2-55, PHB  The 10,000' pointer is above 1, the 1,000' pointer is above 4, and the 100' pointer is on 5. This indicates an altitude of 14,500 feet. |
|  | (Refer to figure 3.) Altimeter 3 indicates  A-9,500 feet.  B- 10,950 feet.  C- 15,940 feet. | Answer A. GFDPP 2-55, PHB  The 10,000' pointer is near 1, the 1,000' pointer is above 9, and the 100' pointer is on 5. This indicates the altitude is 9,500 felet. |

(Refer to figure 3.) Which altimeter(s) indicate(s) more than 10,000 feet?  
  
A-1,2, and 3.  
  
B- 1 and 2 only.  
  
C- 1 only.

|  |  |
| --- | --- |
| Which color identifies the normal flap operating range?  A- The lower limit of the white arc to the upper limit of the green arc.  B- The green arc.  C- The white arc. | Answer C. GFDPP 2-52, PHB  (Refer to figure 4.) The white arc indicates the normal flap operating range |
|  | (Refer to figure 4.)  What is the caution range of the airplane?  A-0 to 55 KTS B- 100 to 165 KTS C- 165 to 208 KTS | Answer C. GFDPP 2-52, PHB  The yellow arc indicates the caution range. On this instrument, it is 165 to 208 knots. |
|  | (Refer to figure 4.)  The maximum speed at which the airplane can be operated in smooth air is  A-100 KTS.  B- 165 KTS.  C-208 KTS. | Answer C. GFDPP 2-52, PHB  In smooth air, an airplane can be operated in the yellow arc up to the red line, in this case, 208 KTS. |
|  | (Refer to figure 4.)  Which marking identifies the never-exceed speed?  A- Upper limit of the green arc  B- Upper limit of the white arc  C- The red radial line | Answer C. GFDPP 2-52, PHB  The red line is the never-exceed speed, the yellow arc is the caution range, the green arc is the normal operating range, and the white arc is the flap operating range. |
|  | (Refer to figure 4.)  Which color identifies the power-off stalling speed with wing flaps and landing gear in the landing configuration?  A- Upper limit of the green arc.  B- Upper limit of the white arc.  C- Lower limit of the white arc. | Answer C. GFDPP 2-52, PHB  Stall speed with flaps and gear down is represented by the lower limit of the white arc. |
|  | (Refer to figure 4.)  What is the maximum structural cruising speed?  A-100KTS  B-165KTS  C-208KTS | Answer B. GFDPP 2-52, PHB  This speed is indicated by the upper limit of the green arc, which in this case is 165 KTS. |
|  | (Refer to figure 4.)  Which color identifies the power-off stalling speed in a specified configuration?  A- Upper limit of the green arc.  B- Upper limit of the white arc.  C- Lower limit of the green arc. | Answer C. GFDPP 2-52, PHB  The lower limit of the green arc represents the power-off stall speed in a specified configuration (usually flaps up, gear retracted). |
|  | (Refer to figure 4.)  What is the maximum flaps-extended speed?  A- 58 KTS  B-100 KTS  C- 165 KTS | Answer B. GFDPP 2-52, PHB  This is represented by the upper limit of the white arc, which in this case is 100 KTS. |
|  | What is an important airspeed limitation that is not color coded on airspeed indicators?  A- Never-exceed speed.  B- Maximum structural cruising speed.  C- Maneuvering speed. | Answer C. GFDPP 2-53, PHB  The maneuvering speed of an airplane is not shown on the airspeed indicator. It can be found in the airplane manual or on placards. |
|  | (Refer to figure 5.)  A turn coordinator provides an indication of the  A- movement of the aircraft about the yaw and roll axes.  B- angle of bank up to but not exceeding 30°.  C- attitude of the aircraft with reference to the longitudinal axis. | Answer A. GFDPP 2-66, PHB  The turn coordinator senses movement about the vertical axis (yaw) and the longitudinal axis (roll). |

|  |  |
| --- | --- |
| The proper adjustment to make on the attitude indicator during level flight is to align the  A- horizon bar to the level-flight indication.  B- horizon bar to the miniature airplane.  C- miniature airplane to the horizon bar. | Answer C. GFDPP 2-68, PHB  The miniature airplane is adjustable and should be set to match the level flight indication of the horizon bar. |
|  | (Refer to figure 6.)  How should a pilot determine the direction of bank from an attitude indicator such as the one illustrated?  A- By the direction of deflection of the banking scale (A).  B- By the direction of deflection of the horizon bar (B).  A- By the relationship of the miniature airplane (C) to the deflected horizon bar (B). | Answer C. GFDPP 2-66, PHB  As the airplane banks, the relationship between the miniature airplane and the horizon bar depict the direction ofturn. |
|  | Deviation in a magnetic compass is caused by the  A- presence of flaws in the permanent magnets of the compass.  B- difference in the location between true north and magnetic north.  C- magnetic fields within the aircraft distorting the lines of magnetic force. | Answer C. GFDPP 2-71, PHB  Metal and electronic components in the aircraft create magnetic fields which distort the lines of magnetic force. This causes deviation errors in the compass readings. |
|  | In the Northern Hemisphere, a magnetic compass will normally indicate initially a turn toward the west if  A- a left turn is entered from a north heading.  B- a right turn is entered from a north heading.  C- an aircraft is accelerated while on a north heading. | Answer B. GFDPP 2-74, PHB  When turning from a northerly heading, the compass initially indicates a turn in the opposite direction. When starting a right turn, toward the east, the compass begins to show a turn to the west. |
|  | In the Northern Hemisphere, a magnetic compass will normally indicate initially a turn toward the east if  A- an aircraft is decelerated while on a south heading.  B- an aircraft is accelerated while on a north heading.  C- a left turn is entered from a north heading. | Answer C. GFDPP 2-74, PHB  When turning from a northerly heading, the compass initially indicates a turn in the opposite direction. When starting a right turn, toward the east, the compass begins to show a turn to the west.  In this question, during a left turn toward the west, the magnetic compass would initially indicate a turn to the east. |
|  | In the Northern Hemisphere, if an aircraft is accelerated or decelerated, the magnetic compass will normally indicate  A- a turn momentarily.  B- correctly when on a north or south heading.  C- a turn toward the south.aircraft is accelerated while on an east or west heading. | Answer B. GFDPP 2-73, PHB  Since acceleration and deceleration errors are most pronounced on east/west headings, accelerating or decelerating on a north or south heading will not show much of an error on the magnetic compass. |
|  | In the Northern Hemisphere, the magnetic compass will normally indicate a turn toward the south when  A- a left turn is entered from an east heading.  B- a right turn is entered from a west heading.  C- the aircraft is decelerated while on a west heading. | Answer C. GFDPP 2-73, PHB  Acceleration error is most pronounced on east/west headings. Using the acronym ANDS (Accelerate—North, Decelerate — South), acceleration will show a turn to the north, and deceleration will show a turn to the south. |
|  | During flight, when are the indications of a magnetic compass accurate?  A- Only in straight-and-level unaccelerated flight.  B-As long as the airspeed is constant.  C- During turns if the bank does not exceed 18°. | Answer A. GFDPP 2-74, PHB  Magnetic dip causes turning and acceleration/decel-eration errors. For this reason, magnetic compass indications are accurate only in straight-and-level unaccelerated flight. |
|  | If the outside air temperature (OAT) at a given altitude is warmer than standard, the density altitude is  A- equal to pressure altitude.  B- lower than pressure altitude.  C- higher than pressure altitude. | Answer C. GFDPP 2-56,57, PHB  When the OAT is warmer than standard, the density altitude (DA) is higher than pressure altitude. |
|  | In the Northern Hemisphere, a magnetic compass will normally indicate a turn toward the north if  A- a right turn is entered from an east heading.  B- an aircraft is decelerated while on an east or west heading,  C- an aircraft is accelerated while on an east or west heading. | Answer C. GFDPP 2-73, PHB  Acceleration error is most pronounced on east/west headings. Using the acronym ANDS (Accelerate—North, Decelerate — South), acceleration will show a turn to the north, and deceleration will show a turn to the south. |

|  |  |
| --- | --- |
| What are the standard temperature and pressure values for sea level?  A- 15°C and 29.92 inches Hg.  B- 59°C and 1013.2 millibars.  C- 59°F and 29.92 millibars. | Answer A. GFDPP 2-51, PHB  The standard atmosphere is a temperature of 15°C (59°F) and 29.92" Hg (1013.2 millibars). |
|  | If a pilot changes the altimeter setting from 30.11 to 29.96, what is the approximate change in indication?  A- Altimeter will indicate . 15 inches Hg higher.  B-Altimeter will indicate 150 feet higher.  C-Altimeter will indicate 150 feet lower. | Answer C. GFDPP 2-59, PHB  Each .1 " change on the altimeter setting equates to about 100 feet. In this case, the change is .15 lower, or 150 feet. |
|  | Under which condition will pressure altitude be equal to true altitude?  A- When the atmospheric pressure is 29.92 inches Hg.  B- When standard atmospheric conditions exist.  C- When indicated altitude is equal to the pressure altitude. | Answer B. GFDPP 2-57, AW  Pressure altitude equals true altitude when standard atmospheric conditions exist. When nonstandard conditions exist, true altitude will not equal pressure altitude. |
|  | Under what condition is pressure altitude and density altitude the same value?  A-At sea level, when the temperature is 0°F.  B- When the altimeter has no installation error.  C- At standard temperature. | Answer C. GFDPP 2-56, PHB  Since density altitude is pressure altitude corrected for nonstandard temperature, DA and PA are equal only at standard temperature. |
|  | If a flight is made from an area of low pressure into an area of high pressure without the altimeter setting being adjusted, the altimeter will indicate  A- the actual altitude above sea level.  B- higher than the actual altitude above sea level.  C- lower than the actual altitude above sea level. | Answer C. GFDPP 2-59, AW  The aircraft will be at a higher true (actual) altitude above sea level than is indicated. In other words, the altimeter will indicate lower than the actual altitude. |
|  | If a flight is made from an area of low pressure into an area of high pressure without the altimeter setting being adjusted, the altimeter will indicate  A- lower than the actual altitude above sea level.  B- higher than the actual altitude above sea level.  C- the actual altitude above sea level. | Answer B. GFDPP 2-59, AW  Remember, "from high to low, look out below." In other words, the aircraft will be at a lower true (actual) altitude than indicated, so the altimeter indicates higher than actual. |
|  | Under what condition will true altitude be lower than indicated altitude?  A- In colder than standard air temperature.  B- In warmer than standard air temperature.  C- When density altitude is higher than indicated altitude. | Answer A. GFDPP 2-60, AW  When the air is colder than standard, the aircraft's actual (true) altitude will be lower than indicated. |
|  | Which condition would cause the altimeter to indicate a lower altitude than true altitude?  A- Air temperature lower than standard.  B-Atmospheric pressure lower than standard.  C- Air temperature warmer than standard. | Answer C. GFDPP 2-60, AW  When the air is colder than standard, the aircraft's actual (true) altitude will be lower than indicated. In this question, the air temperature is warmer than standard, so indicated altitude will be lower than actual (true) altitude. |
|  | Which factor would tend to increase the density altitude at a given airport?  A- An increase in barometric pressure.  B- An increase in ambient temperature.  C-A decrease in relative humidity. | Answer B. GFDPP 2-56, AW  When the air is colder than standard, the aircraft's actual (true) altitude will be lower than indicated.  In this question, the air temperature is warmer than standard, so indicated altitude will be lower than actual (true) altitude. |
|  | The angular difference between true north and magnetic north is  A- magnetic deviation.  B- magnetic variation.  C- compass acceleration error. | Answer B. GFDPP 2-70,9-11, PHB  Magnetic variation occurs because the earth's magnetic poles do not coincide with its geographic poles, and a magnetic compass aligns with the magnetic poles. You can determine local magnetic variation by referencing the isogonic lines on aeronautical charts, which are represented by dashed magenta lines. |

|  |  |
| --- | --- |
| In the Northern Hemisphere, a magnetic compass will normally indicate a turn toward the north if  A- a left turn is entered from a west heading.  B- an aircraft is decelerated while on an east or west heading.  C- an aircraft is accelerated while on an east or west heading. | Answer C. GFDPP 2-73, PHB  An acronym to easily remember acceleration errors is ANDS (Accelerate North Decelerate South). Acceleration errors occur primarily due the counter weights added to offset magnetic dip. |
|  | 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?  A- The compass will initially indicate a turn to the left.  B- The compass will indicate a turn to the right, but at a faster rate than is actually occurring.  C- The compass will remain on south for a short time, then gradually catch up to the magnetic heading of the airplane. | Answer B. GFDPP 2-74, PHB  A turn from a southerly heading, results in a compass indication in the correct direction, but leading the actual heading. Various compass errors arise due to magnetic dip and from the compass counter weights added to offset dip. |
|  | When converting from true course to magnetic heading, a pilot should  A- subtract easterly variation and right wind correction angle.  B- add westerly variation and subtract left wind correction angle.  C- subtract westerly variation and add right wind correction angle. | Answer B. GFDPP 2-70, PHB  Remember, "East is least, West is best" to recall that easterly variation is subtracted and westerly is added. This calculation is often performed in conjunction with wind correction calculations using the formula:  TC ± WCA = TH ± VAR = MH ± DEV = CH  When using the wind side of a flight computer, add wind correction if your wind dot is to the right of the centerline, and subtract if it's to the left. You can easily visualize this by remembering that compass headings decrease as you turn left, so a correction to the left requires that you subtract the correction angle. |
|  | Deviation error of the magnetic compass is caused by  A-northerly turning error.  B- certain metals and electrical systems within the aircraft.  C- the difference in location of true north and magnetic north. | Answer B. GFDPP 2-71, PHB  Metal and electronic components in the aircraft create magnetic fields which distort the lines of magnetic force. This causes deviation errors in the compass readings. |

PILOT INSTITUE

FLIGHT