Free FAA A&P Practice Questions

10 realistic FAA A&P practice questions with detailed answer explanations — Sky License

Question 1 — General

A technician needs to convert 5 gallons of hydraulic fluid to liters for a service order. Given that 1 gallon equals 3.785 liters, what is the equivalent volume in liters?

A. 18.925 liters
B. 1.321 liters
C. 15.14 liters

Answer: A — 18.925 liters

Multiply gallons by liters per gallon: 5 × 3.785 = 18.925 liters. Accurate unit conversion is critical for fluid servicing and documentation per AC 43.13-1B, Chapter 8. The other options are incorrect because they divide (1.321), use 3.028 as the conversion factor (15.14), or round incorrectly (18.0).

Question 2 — General

While troubleshooting a hydraulic actuation system on a corporate turboprop, you measure a pressure of 1,500 psi at the pump outlet and 1,450 psi at the actuator inlet. The system uses a 3/8-inch aluminum line with several 90-degree fittings between the two points. Which action is most appropriate based on the pressure drop?

A. Replace the entire hydraulic line because any measurable pressure drop indicates a blockage.
B. Note the 50 psi drop as normal due to fluid friction and fitting losses, and continue troubleshooting the reported slow actuator movement.
C. Increase the system pressure to compensate for the 50 psi drop.

Answer: B — Note the 50 psi drop as normal due to fluid friction and fitting losses, and continue troubleshooting the reported slow actuator movement.

In hydraulic systems, a small pressure drop between the pump and actuator is expected due to fluid viscosity, line friction, and fittings (per AC 43.13-1B Chapter 7). A 50 psi drop on a 1,500 psi system is normal. The slow actuator movement is more likely due to a different cause such as low flow, internal leakage, or a faulty control valve. Replacing the line or increasing pressure are not warranted and could introduce new problems.

Question 3 — General

While reviewing a maintenance manual for a flap actuator replacement, you notice the schematic uses a dashed line to represent a mechanical linkage. During the job, you must verify the correct routing of a cable that is shown with this line type. What is the most important reason to correctly interpret this symbol?

A. To ensure the correct part number is ordered for the cable
B. To understand that the dashed line indicates a mechanical connection that must be routed without interference
C. To determine the electrical continuity of the cable shield

Answer: B — To understand that the dashed line indicates a mechanical connection that must be routed without interference

On aircraft drawings, a dashed line typically represents a mechanical linkage or control cable. Correct interpretation is essential to ensure proper routing, avoiding chafing or binding, which could lead to control failure. This aligns with AC 43.13-1B Chapter 7, which emphasizes correct installation and routing of mechanical controls to prevent interference and maintain system integrity.

Question 4 — General

A mechanic is completing a 100-hour inspection and finds a cracked bracket on the landing gear. The mechanic knows the part is not in stock and the aircraft is needed for a flight later that day. What is the correct action?

A. Repair the bracket with a weld, even though it is not approved, to get the aircraft flying.
B. round the aircraft until a replacement bracket is obtained, and document the discrepancy in the logbook.
C. pply a temporary clamp to the bracket and defer the repair to a later date.

Answer: B — round the aircraft until a replacement bracket is obtained, and document the discrepancy in the logbook.

This scenario involves 'schedule pressure' and the temptation to use an unapproved repair. The correct action is to ground the aircraft and order the correct replacement part, documenting the discrepancy as per 14 CFR 43.9. Welding a structural bracket without approved data is a violation of 14 CFR 43.13(a) and could compromise safety. This question tests the mechanic's ability to resist pressure and make the safest decision.

Question 5 — Airframe

During a preflight inspection of a turbine aircraft, you notice the pneumatic de-icing boot on the left wing is slightly inflated while the system is OFF. The de-ice system uses a pressure controller with a solenoid valve. What is the MOST likely cause of this condition?

A. The solenoid valve is stuck in the closed position, trapping residual pressure in the boot.
B. The pressure controller's vacuum switch is malfunctioning, causing the boot to inflate due to suction.
C. The solenoid valve is leaking internally, allowing bleed air to pass into the boot even when the system is OFF.

Answer: C — The solenoid valve is leaking internally, allowing bleed air to pass into the boot even when the system is OFF.

An inflated boot with the system OFF indicates that pressurized air is leaking past the solenoid valve. A stuck closed valve would trap pressure but not allow new air in, and a vacuum switch malfunction would not cause inflation. An open exhaust valve would vent pressure, not inflate the boot. This is a classic troubleshooting scenario for pneumatic de-icing systems. Reference: AC 43.13-1B, Chapter 12 (Ice and Rain Control) and the aircraft maintenance manual (AMM) for the specific system.

Question 6 — Airframe

An A&P mechanic is troubleshooting a pilot's complaint that the airspeed indicator is reading low during cruise flight. The pitot tube and static ports have been inspected and are clear. What is the next MOST logical step in the troubleshooting process?

A. Replace the airspeed indicator with a new unit.
B. heck the static system for leaks using a pitot-static tester.
C. heck the pitot line for a blockage or kink.

Answer: B — heck the static system for leaks using a pitot-static tester.

A low airspeed reading can be caused by a leak in the static system, which would allow the static pressure to be higher than ambient, reducing the differential pressure sensed by the airspeed indicator. Per 14 CFR 43, Appendix E, the static system must be inspected and tested every 24 calendar months. AC 43.13-1B, Chapter 8, provides procedures for leak testing the static system using a pitot-static tester. Checking the pitot line is already ruled out since the pitot tube was inspected and clear, but a leak in the pitot line could also cause low readings; however, the question states the pitot tube is clear, not the line. Replacing the indicator without first verifying the static system is not a best practice. The altimeter setting is not directly related to airspeed indication.

Question 7 — Airframe

A helicopter pilot reports that the rotor brake is ineffective during shutdown. The mechanic inspects the system and finds the brake lining is worn beyond the manufacturer's limit. What is the correct action?

A. djust the brake cable to increase friction and return to service.
B. Replace the brake lining and return to service.
C. Return the helicopter to service and note the condition for the next inspection.

Answer: B — Replace the brake lining and return to service.

Worn brake linings reduce braking effectiveness and can lead to rotor overspeed during shutdown, which is a safety hazard. The correct action is to replace the lining with new parts per the manufacturer's maintenance manual and AC 43.13-1B, Chapter 7. Adjusting a worn lining is not a permanent fix and may not restore adequate braking. Returning to service with a known defect violates 14 CFR 43.13(a). Cleaning the disc does not address the worn lining.

Question 8 — Powerplant

A technician has just completed a scheduled 100-hour inspection on a turbine engine. During the inspection, he found a minor oil leak at a B-nut on a fuel line that he repaired by tightening it. He also replaced a worn O-ring on an oil pressure line. What documentation is required before returning the aircraft to service?

A. maintenance record entry describing the work performed, including the inspection, the repair of the leak, and the O-ring replacement, signed by the technician with his certificate number.
B. No logbook entry is required for the 100-hour inspection because it is a routine inspection, but the repair and replacement must be documented.
C. n FAA Form 337 is required for the O-ring replacement because it is a major repair.

Answer: A — maintenance record entry describing the work performed, including the inspection, the repair of the leak, and the O-ring replacement, signed by the technician with his certificate number.

14 CFR 43.9 requires a maintenance record entry after performing any maintenance, preventive maintenance, or inspection. The entry must include a description of the work, the date, the signature and certificate number of the person approving the aircraft for return to service. The 100-hour inspection itself also requires a logbook entry. The O-ring replacement and B-nut tightening are routine maintenance, not major repairs, so no FAA Form 337 is required. The entry must cover all work performed during the maintenance action.

Question 9 — Powerplant

During an inspection, you find a small oil leak at the accessory case gasket. What is the best course of action?

A. Replace the gasket and torque the bolts to specification.
B. pply sealant over the gasket and tighten.
C. Tighten the bolts until the leak stops.

Answer: A — Replace the gasket and torque the bolts to specification.

Replacing the gasket is the proper repair; over-tightening can distort the case. Torque to spec per AC 43.13-1B. Reference: AC 43.13-1B.

Question 10 — Powerplant

After an engine start, the starter cutout switch fails to disengage the starter motor from the crankshaft. What is the PRIMARY danger of this malfunction?

A. The starter motor will overheat and burn out, creating a fire hazard.
B. The starter motor will be driven by the engine at excessive speeds, leading to mechanical failure of the starter drive or the accessory gearbox.
C. The starter motor will continue to draw high current, draining the aircraft battery.

Answer: B — The starter motor will be driven by the engine at excessive speeds, leading to mechanical failure of the starter drive or the accessory gearbox.

If the starter does not disengage, the engine will drive the starter at speeds far beyond its design limits. This can cause the starter's armature to burst, damaging the starter itself and potentially the accessory gearbox. This is a critical safety issue emphasized in the FAA AMT Powerplant Handbook. While overheating and battery drain are possible, the primary danger is the mechanical failure due to overspeed. This is also why starter cutout systems are inspected and tested per the manufacturer's maintenance manual and 14 CFR 43.15.