06/13/2012
Bank: (Flight Engineer)
Airman Knowledge Test Question Bank

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1. PLT305 FEX

If the leading edge slats (flaps) will not extend, you

A) know lift will be less at slower speeds.

B) expect aileron control to improve during low angles of attack.

C) anticipate increased air flow over the trailing edge flaps and a nose lifting force result.

2. PLT124 FEX

An airplane is climbing at Mach .72. The true airspeed will

A) increase with altitude.

B) increase as pressure decreases.

C) decrease as the temperature decreases.

3. PLT124 FEX

When the air density changes, how must the true airspeed be changed to maintain the same angle of attack in level flight?

A) The airspeed must increase when the air density decreases.

B) The airspeed must increase when the air density increases.

C) The airspeed must decrease when the air density decreases.

4. PLT124 FEX

Which is an advantage of flying a jet at high altitudes?

A) Lower temperatures increase engine efficiency.

B) Thrust increases as the density of the air decreases.

C) Lower engine RPM's will result in decreased specific fuel consumption.

5. PLT328 FEX

Which factor is most significant when determining the optimum cruise altitude available?

A) Winds aloft and temperature forecast.

B) Fuel requirement to climb to altitude.

C) Gross weight of the airplane at the beginning of the cruise.

6. PLT263 FEX

A turbojet aircraft is equipped with heated inlet ducts and airfoil leading edges. When is this type of anti-icing system usually activated during flight?

A) It is operated continuously while in flight.

B) At all times when the OAT is below freezing.

C) Whenever icing conditions are first encountered or are expected to occur.

7. PLT263 FEX

A turbojet aircraft is equipped with bleed air heated inlet ducts and airfoil leading edges. When this type of anti-icing system is activated during flight, the flight engineer

A) can ignore the turbine temperatures due to the extremely cold outside temperature.

B) may need to reduce the power setting to maintain the turbine temperatures (EGT, ITT, etc.)

C) will expect to see a decrease in turbine temperatures due to limited combustion air in the engines.

8. PLT109 FEX

Thermal runaway in nickel-cadmium batteries are usually caused by?

A) Low temperatures and high discharge rates.

B) Deep rapid discharges and low charge rates.

C) High temperatures and constant-voltage charging.

9. PLT109 FEX

What instrument readings would indicate a ni-cad battery thermal runaway?

A) Increasing OAT and generator loading while the battery charge current is decreasing.

B) High temperature and battery discharging at a constant rate, regardless of loadmeter indications.

C) Continuously rising charge current and increasing battery temperature.

10. PLT109 FEX

Overcharging a nickel-cadmium battery will likely result in a release of

A) toxic nickel hydroxide liquid or steam.

B) oxygen and explosive hydrogen gases.

C) highly combustible acetylene and oxygen gases.

11. PLT207 FEX

A relay usually functions as a remote switch, whereas a solenoid

A) must have AC power at all times to function.

B) can actuate remote valves or switches.

C) functions as a gang valve assembly.

12. PLT207 FEX

What speed does a frequency meter give a direct indication of?

A) Engine N2 times the number of generator poles.

B) Generator RPM times number of poles in generator.

C) CSD input speed times the number of generator poles.

13. PLT207 FEX

If one of the generators fails in a parallel bus electrical system,

A) bus control circuitry will automatically shed all of that generator`s load.

B) the electrical load is automatically supplied by the remaining generator, up to it`s load limit.

C) each generator supplies power separately from the other generators to its respective bus.

14. PLT207 FEX

An ac generator control unit will

A) protect the generator and electrical system from reverse currents, overexcitation, and overvoltages.

B) convert undervoltage to the desired value, acknowledge differential faults, and facilitate manual paralleling.
C) command generator rpm increases in underspeed conditions and include bus-tie circuit-breaker automatic closing.

15. PLT207 FEX
A thermocouple is
A) a pair of dissimilar wires connected together.
B) made to detect light.
C) able to sense unsafe vibrations.

16. PLT137 FEX
Which components make up the basic air-cycle cooling system?
A) Heaters, coolers, and compressor.
B) Ram air source, compressors, and engine bleeds.
C) A source of compressed air, heat exchangers, and a turbine.

17. PLT212 FEX
What is the perferred fire extinguishing agent for installed fire extinguishing systems?
A) Halon 1001.
B) $CO_2$.
C) Halon 1211.

18. PLT139 FEX
The optical smoke detectors on the flight engineer panel correspond to
A) light beam responses to cargo hold air samples.
B) closed circuit mini-cam installations in the cargo hold.
C) translucent spotter tubes providing a view of the cargo holds.

19. PLT346 FEX
Airplanes equipped with both inboard and outboard ailerons normally use the outboard ailerons only during
A) low-speed operations.
B) high-speed operations.
C) low-altitude operations.

20. PLT346 FEX
How does an aileron balance panel function?
A) A weight is installed ahead of the hinge line to counteract flight loads.
B) The aileron is extended ahead of the hinge line so the airstream will help move the surface.
C) Pressure changes created by the aileron deflect a hinged panel in a compartment ahead of the aileron.

21. PLT473 FEX
Which direction from the primary control surface does an antiservo tab move?
A) Same direction.
B) Opposite direction.
C) Remains fixed for all positions.

22. PLT473 FEX
The purpose of an antiservo tab is to
A) move the flight controls in the event of manual reversion.

B) reduce control forces by deflecting in the proper direction to move a primary flight control.
C) prevent a control surface from moving to a full deflection position due to aerodynamic forces.

23. PLT473 FEX
Which direction from the primary control surface does a servo tab move?
A) Same direction.
B) Opposite direction.
C) Remains fixed for all positions.

24. PLT278 FEX
What information does a Mach meter present?
A) The ratio of airplane true airspeed to the speed of sound.
B) The ratio of airplane indicated airspeed to the speed of sound.
C) The ratio of airplane equivalent airspeed, corrected for installation error, to the speed of sound.

25. PLT253 FEX
Which is a means of controlling the fuel temperature on turbojet-powered airplanes?
A) Electrically heated fuel filters.
B) Engine bleed air routed to a heat exchanger.
C) Fuel filters heated by engine lubricating oil.

26. PLT253 FEX
The fuel heater system may be
A) manually or automatically controlled.
B) on and heating all the time.
C) on and heating all the time with JET A fuel.

27. PLT324 FEX
If the oil cooler relief valve should stick in the open position, what would be the probable result?
A) Decreased oil temperature.
B) Increased oil temperature.
C) Pressurization of the case and oil leakage.

28. PLT273 FEX
The purpose of a hydraulic accumulator is to
A) store hydraulic fluid under pressure.
B) collect hydraulic fluid from system leaks.
C) gather foam and extract the air before returning it to the reservoir.

29. PLT273 FEX
What type of gas may be used to service hydraulic accumulators?
A) Nitrogen.
B) Dry oxygen.
C) Carbon dioxide.

30. PLT110 FEX
The main purpose of a brake debooster is to

A) provide pneumatic braking.
B) reduce the hydraulic pressure.
C) decrease the volume of fluid going to the brakes.

31. PLT138 FEX
What tread wear will occur if tires are underinflated?
A) Uniform wear at a fast rate.
B) Tread worn away more on the shoulders than in the center.
C) Accelerated centerline wear while leaving rubber on the shoulder.

32. PLT138 FEX
The purpose of chines on tires is to
A) increase traction on snow or ice covered runways.
B) reduce the tendency to hydroplane on wet runways.
C) deflect water or slush away from the engine intakes.

33. PLT138 FEX
The purpose of fusible plugs in aircraft wheels is to
A) prevent tire blowouts.
B) quickly deflate tires for repair.
C) protect the antiskid electrical system.

34. PLT499 FEX
(Refer to figure 10.) What is the indicated speed of the engine low pressure compressor?
A) 94.1 percent.
B) 96.5 percent.
C) 97.0 percent.

35. PLT499 FEX
Which engine instrument is most likely to show an elevated reading if the turbine wheel is damaged?
A) N2.
B) EPR.
C) EGT or TIT.

36. PLT209 FEX
What will the EPR indication be in the case of iced over EPR probes?
A) The Pt probe vent will act as a Ps probe.
B) The EPR gauge will indicate a false high value.
C) The reduced inlet area causes pressure to increase, and magnifies the influence of ram air pressure.

37. PLT210 FEX
Why should turbine engines normally be operated at idle for a period of time before shutdown?
A) The turbine case cools faster and may shrink down and seize the turbine blades.
B) Rapid cooling of the compressor section may cause cracking of compressor blades.
C) Temperature reduction and stabilization prevents a hot combustion chamber from igniting residual fuel.

38. PLT479 FEX
During starting, what should prevent the engine from driving a pneumatic starter to burst speed?

A) Drive shaft shear point.
B) Sprag clutch assembly.
C) Design of the starter turbine nozzle vanes which causes choking.

39. PLT479 FEX
During engine start, closing of the start air valve may be verified by
A) engine RPM stabilizing at idle.
B) air manifold pressure increasing slightly.
C) air manifold pressure decreasing slightly.

40. PLT499 FEX
It is important to monitor the EGT when starting the engines to prevent
A) hot section burnout or metal distortion.
B) compressor temperature limits from being exceeded.
C) dangerous gas temperatures and velocities when accelerating to idle from injuring personnel or damaging the engine.

41. PLT499 FEX
(Refer to figure 7.) The internal engine temperature will be the lowest at which location?
A) Location 3.
B) Location 4.
C) Location 6.

42. PLT499 FEX
On most engines ram recovery occurs above
A) 60 knots.
B) 100 knots.
C) 140 knots.

43. PLT499 FEX
The speed (RPM or percent) of the low pressure compressor of a dual compressor engine is referred to as
A) N1.
B) N2.
C) N3.

44. PLT499 FEX
In a dual axial-flow compressor system the first stage turbine drives the
A) N1 compressor.
B) N2 compressor.
C) N1 and N2compressors.

45. PLT499 FEX
(Refer to figure 7.) The internal engine pressure will be the lowest at which location?
A) Location 4.
B) Location 5.
C) Location 6.

46. PLT499 FEX

(Refer to figure 8.) Where is the engine high pressure compressor located?

A) Location 1.

B) Location 2.

C) Location 3.

47. PLT499 FEX

The function of the nozzle diaphragm located on the upstream side of the turbine wheel is to

A) increase the pressure of the exhaust mass.

B) increase the velocity of the heated gases flowing past the nozzle diaphragm.

C) decrease the velocity of the heated gases flowing past the nozzle diaphragm.

48. PLT499 FEX

The purpose of the diffuser section in a turbine engine is to

A) convert pressure to velocity.

B) increase pressure and reduce velocity.

C) reduce pressure and increase velocity.

49. PLT210 FEX

Why should shutting an engine down by turning the boost pumps off and closing the airplane`s fuel valve be used during emergencies only?

A) During a subsequent start the engine driven fuel pump may flood the combustion chamber or burner can.

B) The fuel system`s service life will be decreased because fuel wetted components will not be lubricated and may lose their prime.

C) The 30 to 60 seconds for the fuel to clear the fuel lines from the firewall to the fuel controller is too long for normal shutdowns.

50. PLT499 FEX

(Refer to figure 7.) Which engine location will have the highest internal engine temperature?

A) Location 3.

B) Location 4.

C) Location 6.

51. PLT499 FEX

The speed (RPM or percent) of the high pressure compressor of a dual compressor engine is referred to as

A) N1.

B) N2.

C) N3.

52. PLT499 FEX

How does a change in altitude affect the low pressure compressor speed of a triple-spool engine?

A) The compressor will speed up as altitude is increased.

B) The fuel control will maintain a constant compressor speed.

C) The compressor speed will decrease as the atmosphere becomes less dense.

53. PLT499 FEX

Which difference does engine pressure ratio measure?

A) Uncorrected compressor inlet pressure and turbine discharge pressure.

B) Compressor inlet total pressure and turbine discharge total pressure.

C) Compressor outlet total pressure corrected for temperature and turbine discharge total pressure.

54. PLT499 FEX

What does Pt7 mean?

A) Total inlet pressure at Station no. 7.

B) Total absolute pressure at Station no. 7.

C) Pressure and temperature at Station no. 7.

55. PLT479 FEX

If a turbine engine catches fire internally during the start cycle, what initial action should be taken?

A) Secure all switches and leave the airplane.

B) Shut off the fuel and continue motoring the starter.

C) Discharge CO2 into the inlet duct while continuing to motor the engine.

56. PLT108 FEX

What is the minimum glycol content of Type 1 deicing/anti-icing fluid?

A) 30 percent.

B) 50 percent.

C) 80 percent.

57. PLT108 FEX

Which of the following procedures will increase the holding time during the anti-ice phase of a two-step process?

A) Glycol content is raised to 100 percent.

B) The Type 2 fluid is heated before application.

C) The Type 2 fluid is applied with centrifugal pumps.

58. PLT108 FEX

What precaution should be taken when using truck-mounted deice/anti-ice equipment?

A) Run the airplane engines at idle.

B) Spray engine and APU inlets directly.

C) Spray pitot inlets and static ports indirectly.

59. PLT108 FEX

What safeguard should be taken when using mobile ground deice/anti-ice equipment?

A) Open the air-conditioning pack valves.

B) Operate the airplane engines above idle to prevent flameout.

C) Apply fluid to the lower door sills and the door bottoms prior to closing for flight.

60. PLT108 FEX

What should the deice/anti-ice fluid temperature be during the last step of a two-phase process?

A) Hot.

B) Warm.

C) Cold.

61. PLT108 FEX

Type 1 deicing/anti-icing fluids have a significantly

A) shorter holdover period than type ll fluids.

B) longer holdover period than type ll fluids.

C) higher viscosity than type ll fluids.

62. PLT326 FEX

To which position should the oxygen regulator be set when symptoms of hypoxia or hyperventilation are experienced?

A) Normal.

B) Emergency.

C) 100 percent oxygen.

63. PLT497 FEX

What altitude information is transmitted by MODE C of the transponder?

A) Pilot's indicated altitude.

B) Altitude in 10-foot increments.

C) Altitude without barometric pressure correction.

64. PLT440 FEX

What is considered to be flight crewmember essential conversation?

A) Discussing the weather north of the flight route.

B) Discussing the crew configuration for the following leg of the flight.

C) Confirming airplane logbook entries during climb when clear of the airport traffic area.

65. PLT400 FEX

Which documents are required to be carried aboard each domestic air carrier flight conducted under CFR part 121?

A) Load manifest and flight release.

B) Dispatch release, load manifest, and flight plan.

C) Maintenance release, weight and balance release, and flight plan.

66. PLT413 FEX

What minimum amount of fuel should remain for turbine-powered airplanes after jettisoning with the main fuel control? Forty-five minutes at

A) 75 percent maximum continuous power.

B) maximum continuous power with the critical engine inoperative.

C) maximum range speed after climbing from sea level to 10,000 feet.

67. PLT245 FEX

The true airspeed at which an airplane stalls varies with

A) load factor and angle of attack.

B) load factor, weight, and density altitude.

C) density altitude, weight, and angle of attack.

68. PLT242 FEX

An airplane is in equilibrium when

A) there are no accelerations and the airplane continues in steady flight.

B) the airplane is disturbed from its flightpath and it will return without control use.

C) the airplane has neither the tendency to continue or return from disturbance displacement.

69. PLT135 FEX

(Refer to figure 6.) The cabin pressure altitude is 6,000 feet and the airplane altitude is FL 180. What is the differential pressure?

A) 4.44 PSI.
B) 4.71 PSI.
C) 5.46 PSI.

70. PLT011 FEX
(Refer to figures 22 and 23.) What is the takeoff power setting under operating conditions No. 1?
A) 234 BMEP.
B) 204 BMEP.
C) 59.5 inches manifold pressure.

71. PLT190 FEX
Which is an indication of carburetor ice with engines having constant speed propellers?
A) Decrease in propeller RPM.
B) Manifold pressure (MAP) drop.
C) Backfiring, which is caused by a rich mixture.

72. PLT207 FEX
Why is it important that all electrical loads and power sources be turned off before connecting or disconnecting the battery?
A) To prevent discharging the battery.
B) To prevent a spark from igniting explosive gas.
C) To prevent power surges from spiking sensitive equipment.

73. PLT207 FEX
How many spare electrical fuses are required for use in flight?
A) One complete spare set.
B) Three fuses of each size that is installed.
C) The number approved for that airplane described in the certificate holder`s manual.

74. PLT207 FEX
The purpose of static wicks is to
A) decrease the probability of lightning damage to such elements as control hinges.
B) dissipate static charges from control surfaces into the air to prevent radio interference.
C) prevent radio static noise by equalizing charges produced in the aircraft structure.

75. PLT135 FEX
If the cabin rate of climb is too great, how should the pressurization controls be adjusted?
A) Open the outflow valve slower.
B) Close the outflow valve faster.
C) Increase the amount of incoming air.

76. PLT135 FEX
Which best describes cabin differential pressure?
A) The difference between ambient and internal air pressure.
B) The difference between the cabin flight altitude pressure and MSL pressure.
C) The difference between the cabin pressure controller setting and the actual cabin pressure.

77. PLT135 FEX
Which control systems for operating cabin pressurization use reference chamber air pressure within the controller to regulate

the outflow valve?

A) Isobaric and differential.

B) Unpressurized and pressurized controls.

C) Ambient, differential, and maximum differential.

78. PLT473 FEX

The purpose of an elevator trim tab is to

A) provide horizontal balance as airspeed is increased to allow hands-off flight.

B) adjust the upward tail load for different airspeeds in flight allowing neutral control forces.

C) modify the downward tail load for various airspeeds in flight eliminating flight control pressures.

79. PLT253 FEX

One purpose of a fuel tank boost pump is to prevent vapor lock caused by low

A) temperature.

B) altitude operation.

C) atmospheric pressure.

80. PLT250 FEX

Most AVGAS is

A) purple.

B) red.

C) blue.

81. PLT324 FEX

For engines equipped with Hamilton-Standard Hydromatic propellers the purpose of feeding the engine oil pressure pump from a standpipe is to

A) minimize the amount of oil that has to be diluted with fuel in cold weather.

B) provide oil for feathering the propeller in the event an oil line should break.

C) separate the circulating oil from the surrounding oil when the engine is started to permit a fast warmup of the engine.

82. PLT324 FEX

The purpose of the hopper tank is to

A) permit a fast warmup of the engine oil.

B) collect sludge and particles from the oil in the event the oil filter becomes obstructed.

C) provide engine oil to feather the propeller in the event an oil line should break and all of the engine oil is pumped overboard.

83. PLT273 FEX

Why should hydraulic fluid be filtered?

A) Water in the fluid could freeze.

B) It assures a positive feed of foam free fluid to the hydraulic pump inlet.

C) Contaminants may damage the seals and cylinder walls causing internal leakage.

84. PLT273 FEX

What is the significance of the pop-out indicator on some hydraulic filters?

A) Confirmation of fluid thermal expansion in the gear, flaps, or other systems.

B) Evidence that contaminants may prevent components such as check valves from operating.

C) Indication of overfilling and the fluid level of the hydraulic reservoir should be checked.

85. PLT273 FEX

The purpose of pressurizing a hydraulic reservoir is to

A) provide an alternate source of pressure in case of a hydraulic pump failure.

B) assure a positive feed of foam free fluid to the hydraulic pump at high altitudes.

C) insure an adequate supply of fluid to the hydraulic pump inlet during negative-G flight.

86. PLT139 FEX

What safety device is actuated by the compression and extension of a landing gear strut?

A) Uplock switch.

B) Downlock switch.

C) Ground safety switch.

87. PLT338 FEX

Moisture in a pneumatic system is removed

A) by the moisture separator.

B) in the compressor stage.

C) by the filter.

88. PLT115 FEX

What may cause engine detonation?

A) High octane fuel.

B) Low manifold pressure.

C) Excessively lean fuel-air mixture.

89. PLT343 FEX

Excessive oil in radial engines in the the lower cylinders between pistons and heads is an indication of

A) worn oil control rings.

B) oil supply line bypass valve failure.

C) intercylinder drains that are partially or completely blocked.

90. PLT342 FEX

The primary purpose of exhaust augmenters is to

A) increase engine cooling.

B) provide additional thrust.

C) decrease exhaust back pressure.

91. PLT124 FEX

What effect does an increase in atmospheric humidity have on brake horsepower output of a water/alcohol injected engine?

A) A power loss will be experienced by either a wet or dry takeoff.

B) A wet engine takeoff will lose power more rapidly than a dry engine takeoff.

C) A pressure-injected carburetor will not be affected by increased humidity.

92. PLT478 FEX

Does placing the magneto switches in the OFF position guarantee that the propellers are safe to handle?

A) No, the only safe way to ensure the engines will not fire accidently is to disconnect the battery.

B) No, the magneto switches may fail in the closed position and current will continue to be supplied to the ignition system.

C) No, to turn off the ignition the magnetos operate on the principle of short-circuiting the current and a loose ground wire can

allow a cylinder to fire.

93. PLT115 FEX

Afterfiring is caused by

A) the spontaneous combustion of the unburned charge ahead of the flame fronts after the ignition of the charge.

B) charges of unburned fuel in the exhaust gas mixing with air outside the exhaust and igniting, causing an explosion in the exhaust system.

C) a mixture so lean that combustion not completed on the exhaust stroke ignites the contents of the intake manifold when the intake valve opens.

94. PLT115 FEX

Backfiring is caused by

A) fouled spark plugs, defective fuel injection nozzles, or incorrect valve clearances.

B) charges of unburned fuel in the exhaust gas mixing with air outside the exhaust and igniting, causing an explosion in the exhaust system.

C) a mixture so lean that combustion not completed on the exhaust stroke ignites the contents of the intake manifold when the intake valve opens.

95. PLT134 FEX

A minimum loss of power will occur on takeoff in high humidity conditions if

A) the carburetor is set at full rich.

B) the mixture is set for emergency rich and additional fuel is injected.

C) the fuel/air ratio is set for best power and the takeoff is wet (with antidetonation fluid).

96. PLT249 FEX

What does an increase of approximately 125 propeller RPM indicate during shutdown?

A) Idle mixture is correct.

B) Idle mixture is too lean.

C) Idle mixture is too rich.

97. PLT479 FEX

If an attempt is made to start an engine with a hydraulic lock,

A) a connecting rod can bend or break if the crankshaft continues to rotate.

B) the starter gearbox can overtorque since the liquid is incompressible and stops piston movement.

C) the fuel or oil from the lower cylinders can be injected into the exhaust system causing afterfiring.

98. PLT365 FEX

How are the cylinders numbered in a double-row radial engine?

A) Clockwise as viewed from the engine front.

B) Clockwise as viewed from the accessory end.

C) Counterclockwise as viewed from the accessory end.

99. PLT343 FEX

While performing the ground check the supercharger control is shifted from the high to the low position. Normal operation of the supercharger will be indicated by

A) a sudden decrease in manifold pressure.

B) the manifold pressure remaining the same.

C) a momentary increase in manifold pressure.

100. PLT343 FEX

Power is increased by the turbines in a turbocompound engine by

A) exhaust gas velocity powering blow-down turbines geared to the crankshaft.

B) engine driven turbines compressing the fuel/air mixture after it leaves the carburetor to increase the manifold pressure.

C) exhaust gas pressure driving power-recovery turbines which compress the air before it is mixed with metered fuel from the carburetor.

101. PLT351 FEX

Blade angle is the angle between the

A) airfoil chord line and the relative wind.

B) propeller's airfoil chord line and its plane of rotation.

C) face of the propeller blade and the direction of the relative airstream.

102. PLT351 FEX

In the propeller deicing system, electrical power is transferred to the propeller hub assembly

A) through slip rings and carbon brushes.

B) through flexible electrical connectors.

C) by use of slip rings and segment plates.

103. PLT351 FEX

Feathering of a Hamilton-Standard Hydromatic propeller can be accomplished by

A) pushing in the feather button.

B) pulling the fire emergency control handle.

C) moving the propeller control lever to the full aft position.

104. PLT351 FEX

The force which tries to feather the propeller blade is

A) torque bending.

B) aerodynamic twisting.

C) centrifugal twisting moment.

105. PLT351 FEX

Which best describes the blade movement of a feathering propeller set in the HIGH RPM position when the feathering action is begun?

A) Low pitch through reverse, to feather.

B) High pitch through low pitch, to feather.

C) Low pitch through high pitch, to feather.

106. PLT351 FEX

(Refer to figure 11.) The propeller condition depicted is

A) onspeed.

B) overspeed.

C) underspeed.

107. PLT351 FEX

The principle which operates a Hamilton-Standard Hydromatic propeller is oil pressure

A) to decrease or increase the blade angle.

B) to decrease the blade angle and counterweights to increase the blade angle.

C) and centrifugal twisting moment to decrease the blade angle and, counterweights and springs to increase the blade angle.

108. PLT351 FEX

Retarding the throttle/power setting in cruise flight will result in

A) a decrease in blade angle.

B) an increase in blade angle.

C) a decrease in propeller RPM.

109. PLT351 FEX

Which operational force creates the greatest stress on a propeller?

A) Centrifugal.

B) Torque bending.

C) Aerodynamic twisting.

110. PLT351 FEX

The function of the propeller synchrophase system is to

A) set the blades of all propellers to an identical blade angle.

B) maintain slave engine RPM within 3 percent of the master engine RPM.

C) maintain a predetermined angular relationship between the blades of all propellers as they rotate.

111. PLT351 FEX

What initial action is taken to unfeather a Hamilton-Standard Hydromatic propeller?

A) Place the aircraft in a shallow dive to start the propeller windmilling.

B) Turn the autofeather system off and place the propeller lever to the full forward position.

C) Hold the feather button in until the propeller starts windmilling, then release for restart.

112. PLT108 FEX

The purpose of diluting ethylene glycol deicing fluid with water in nonprecipitation conditions is to

A) raise the eutectic point.

B) decrease the freeze point.

C) increase the minimum freeze point (onset of crystallization).

113. PLT108 FEX

Deicing fluid should be dispensed at what temperature?

A) Cold.

B) Heated.

C) Ambient.

114. PLT108 FEX

Anti-icing fluid should provide freezing point protection to

A) -20 °F ambient temperature.

B) +32 °F outside temperature or below.

C) a freezing point no greater than 20 °F below the ambient or airplane surface temperature.

115. PLT108 FEX

Type 2 deicing/anti-icing fluids have a significantly

A) longer holdover period than type 1 fluids.

B) shorter holdover period than type 1 fluids.

C) lower viscosity than type 1 fluids.

116. PLT389 FEX

Which CFR governs airplane operations when common carriage is not involved with airplanes over 80,000 pounds GTOW or more than 20 passenger seats?

A) CFR part 135 for cargo flights.

B) CFR part 121 for test flights.

C) CFR part 125 for passenger flights.

117. PLT410 FEX

What are the minimum flight engineer operating experience requirements for reciprocating-powered airplanes when common carriage is involved?

A) Flight engineer duties performed for 8 hours under the supervision of a check airman in flight.

B) Flight engineer duties performed for 10 hours under the supervision of a qualified flight engineer.

C) Flight engineer duties performed for 12 hours under the supervision of a qualified pilot in command.

118. PLT407 FEX

A flight engineer operating under CFR part 121 must receive recurrent training on

A) normal operation of the airplane flight systems within the preceding 6 calendar months.

B) emergency operation of all airplane flight systems within the preceding 12 calendar months.

C) alternate operation of the airplane flight systems within the preceding 24 calendar months.

119. PLT409 FEX

Duty and rest period rules for domestic air carrier operations require that a flight crewmember

A) not be assigned to any duty with the air carrier during a required rest period.

B) be relieved of all duty for at least 48 hours during any 7 consecutive days.

C) not be assigned to any duty for a period of at least 18 hours if the flight crewmember had been on duty aloft for 9 hours.

120. PLT438 FEX

Above which cabin altitude must oxygen be provided for all persons during the entire flight?

A) All crewmembers 10,000 feet; all passengers 12,000 feet.

B) All crewmembers 12,000 feet; all passengers 15,000 feet.

C) All crewmembers 10,000 feet; all passengers 15,000 feet.

121. PLT439 FEX

Which maintenance task may a flight engineer perform while operating under 14 CFR part 125?

A) Landing light replacement if there is no certificated mechanic available.

B) Remove, inspect, and replace a chip detector if the malfunction occurs in a remote area.

C) Replenish hydraulic fluid in accordance with applicable regulations and the certificate holder`s manuals.

122. PLT196 FEX

When are ATIS broadcasts updated?

A) Only when the ceiling or visibility changes by a reportable value.

B) Every 30 minutes if weather conditions are below basic VFR, otherwise hourly.

C) Upon receipt of any official weather, regardless of content change or reported values.

123. PLT021 FEX

(Refer to figure 52.) What is the maximum payload under operating conditions No. 1?

A) 20,500 pounds.
B) 21,500 pounds.
C) 25,500 pounds.

124. PLT253 FEX
A reason for using a crossfeed fuel system is to
A) be able to purge any fuel tank.
B) jettison fuel during emergencies.
C) help maintain the aircraft`s center of gravity.

125. PLT240 FEX
If the landing gear on an airplane moves forward during retraction, the
A) total moments will decrease.
B) total moments will increase.
C) total moments will remain the same.

126. PLT123 FEX
Takeoff speed limits V1, VR, and V2, contained in performance charts and tables of the airplane flight manual are
A) true airspeeds.
B) indicated airspeeds.
C) corrected airspeeds.

127. PLT135 FEX
The cabin pressure control setting has a direct effect upon the
A) compressor speed.
B) outflow valve opening.
C) pneumatic system pressure.

128. PLT251 FEX
What is the difference between Jet A and Jet B fuel?
A) Jet A is colorless and Jet B is straw colored.
B) Jet A has a freeze point of -40 °C and Jet B has a freeze point of -47 °C.
C) Jet B is a blend of gasoline and kerosene made for operating at extremely low temperatures.

129. PLT273 FEX
How may pressure from an engine-driven hydraulic pump be regulated?
A) Constant speed drive.
B) Variable-displacement pump.
C) In-line variable restrictor orifice.

130. PLT110 FEX
The purpose of the antiskid system control box is to
A) sense wheel speed change.
B) prevent landing with the brakes applied.
C) meter the brake pressure to prevent stoppage of wheel rotation.

131. PLT499 FEX
Which engine instrument will indicate a higher-than-normal reading if the compressor has damage?

A) Engine RPM.

B) Torquemeter.

C) Turbine inlet temperature.

132. PLT479 FEX

While starting a turbine engine with an air starter, a hung start occurs before the starter disengages. Which procedure is correct?

A) Shut down the engine.

B) Increase the air velocity to the starter.

C) Slowly increase the power lever until the engine accelerates to idle.

133. PLT251 FEX

Mixing aviation gasoline with jet fuel will effect a turbine powerplant by forming deposits on the

A) turbine blades.

B) compressor blades.

C) inlet guide vanes.

134. PLT499 FEX

Which is the most critical parameter for a turbine engine during starting?

A) TIT.

B) Oil pressure.

C) Starter engagement time.

135. PLT499 FEX

Which location has the highest gas volume in a turbine engine?

A) Turbine outlet.

B) Compressor outlet.

C) Combustion chamber outlet.

136. PLT499 FEX

Equivalent shaft horsepower (ESHP) is defined as

A) the total power delivered to the propeller.

B) the shaft horsepower plus the effects of the jet thrust produced by the engine.

C) the actual amount of horsepower delivered to the propeller shaft that is equivalent to 33,000 foot-pounds of work per minute.

137. PLT499 FEX

Which location has the highest gas pressure in a turbine engine?

A) Turbine outlet.

B) Compressor outlet.

C) Combustion chamber outlet.

138. PLT351 FEX

Beta range refers to the

A) propeller RPM range controlled by the prop levers.

B) propeller blade angle which can produce zero or negative thrust.

C) second letter of the Greek alphabet used to represent a constant propeller RPM within the flight range of the throttle.

139. PLT019 FEX

(Refer to figure 6.) The cabin pressure differential is 5.46 PSI and the airplane altitude is FL 200. What is the cabin altitude?

A) 3,200 feet.

B) 4,400 feet.

C) 5,000 feet.

140. PLT012 FEX

(Refer to figure 29.) How much fuel remains after operating under these conditions?

| | | | |
|---|---|---|---|
| Number of engines | 4 | | |
| Beginning total weight | 95,720 lb | | |
| Zero fuel weight | 64,850 lb | | |
| BHP | Pressure Alt. | Spark | Time |
| 1,200 | 17,000 ft | T/O & CL | 18 min |
| 1,100 | 19,000 ft | Cruise | 1 hr 20 min |
| 1,000 | 19,000 ft | Cruise | 1 hr 10 min |

A) 3,872 gallons.

B) 4,194 gallons.

C) 4,309 gallons.

141. PLT137 FEX

Which cabin air-conditioning system utilizes a refrigerant to carry away cabin heat?

A) Air-cycle.

B) Vapor cycle.

C) Evaporative blower.

142. PLT115 FEX

What will result if an insufficient amount of ADI fluid is injected during takeoff?

A) Temporary power increase.

B) Engine overheat and detonation.

C) Power will remain the same if the fuel/air ratio is increased.

143. PLT324 FEX

What is the oil viscosity grade? The oil viscosity grade

A) indicates how fluid an oil is at low temperature under laboratory conditions.

B) is an arbitrary method of stating the rate of change in viscosity of an oil with changes of temperature.

C) is the weight of any oil compared with the weight of an equal volume of oil from the American Petroleum Institute (API) gravity scale.

144. PLT273 FEX

What color identifies MIL-H-5606?

A) Red.

B) Amber.

C) Green.

145. PLT365 FEX

The BMEP indicator measures the

A) ratio of the shaft output to the power developed in the cylinders.

B) output shaft torque and converts it to BMEP.
C) actual power output to the propeller by converting heat energy to mechanical energy.

146. PLT365 FEX
The indicated horsepower of a reciprocating engine is defined by the
A) computed horsepower based on engine RPM and manifold pressure adjusted to sea level.
B) power developed in the combustion chambers less computed friction losses within the engine.
C) power developed in the combustion chambers without reference to friction losses within the engine.

147. PLT210 FEX
The purpose of shutting an engine down with the mixture control at the end of the flight is to
A) prevent an accidental start.
B) preclude liquid lock during subsequent starts.
C) assure that there is no fuel in the intake system that could result in a fire.

148. PLT011 FEX
(Refer to figures 20 and 21.) What is the takeoff power available under operating conditions No. 1?
A) 3,710 shaft horsepower.
B) 3,770 shaft horsepower.
C) 4,000 shaft horsepower.

149. PLT012 FEX
(Refer to figure 27.) What is the total estimated fuel burn under operating conditions No. 1?
A) 12,800 pounds.
B) 14,140 pounds.
C) 22,160 pounds.

150. PLT016 FEX
(Refer to figure 26.) How much fuel remains after dumping under operating conditions No. 1?
A) 4,540 pounds.
B) 4,980 pounds.
C) 5,100 pounds.

151. PLT274 FEX
Ice accumulation is usually negligible at temperatures below
A) 0 °C.
B) -20 °C.
C) -40 °F.

152. PLT207 FEX
What is the purpose of a fuse-type current limiter?
A) Prevent overloads in low power circuits.
B) Fast blow design prevents damage to sensitive circuits or equipment.
C) Permit short periods of overload before the fuse link melts and breaks the circuit.

153. PLT251 FEX
What is the difference between turbine fuel Jet A and Jet A-1?
A) Jet A is made for operation at extremely low temperatures.

B) Jet A-1 is made for operation at extremely low temperatures.

C) Jet A is for use in older turbine aircraft, while Jet A-1 is formulated for the newest aircraft.

154. PLT324 FEX

Oil extracts the most heat from which turbine engine components?

A) Turbine bearings.

B) Compressor bearings.

C) Accessory drive bearings.

155. PLT139 FEX

When will the landing gear position warning system provide a warning in the cockpit?

A) When the power levers are retarded and the gear is in transit.

B) When the power levers are advanced and the speed brakes are not retracted.

C) When one power lever is retarded below cruise and the gear is down and locked.

156. PLT478 FEX

Why are pneumatic starters used on most large turbine engines?

A) Less weight.

B) Simple design requires no clutch.

C) Air starters are mechanically more reliable than electrical starters.

157. PLT499 FEX

How does compressor RPM affect the power output of a turbofan engine?

A) Power increases linearly with an increase in compressor speed.

B) Efficiency increases when compressor blade tips reach Mach 1 or slightly higher.

C) Compressor aerodynamics cause a nonlinear increase in power relative to compressor speed.

158. PLT493 FEX

Which is an effect of ice, snow, or frost formation on an airplane?

A) Increased stall speed.

B) Increased pitch-down tendencies.

C) Increased angle of attack for stalls.

159. PLT226 FEX

The temperature and dewpoint spread is small and decreasing, and the temperature is +62 °F. Which type of weather is most likely to develop?

A) Rain showers.

B) Thunderstorms.

C) Fog or low clouds.

160. PLT237 FEX

What effect will decreasing air density have on lift and drag?

A) Lift and drag will decrease.

B) Lift will increase and drag will decrease.

C) Lift will decrease and drag will increase.

161. PLT328 FEX

An airplane is flying at a constant altitude with a power setting which produces the maximum air miles per pound of fuel. To

maintain the maximum air miles per pound of fuel as the weight of the fuel decreases the engine power setting should be

A) decreased.

B) increased.

C) maintained.

162. PLT127 FEX

For an airplane with a given gross weight and constant cruise speed, what is the relationship between fuel flow, temperature, and altitude? Fuel flow is higher when

A) both temperature and altitude are decreased.

B) both temperature and altitude are increased.

C) temperature is increased and altitude is decreased.

163. PLT109 FEX

What condition characterizes a thermal runaway?

A) Increased resistance of the battery to input current.

B) High temperature and undercharging at a constant rate.

C) Continuous rising current and increasing battery temperature.

164. PLT326 FEX

When should 100% oxygen be selected for flight deck masks?

A) During all flight time above 10,000 feet.

B) When first applying the mask.

C) To correct a feeling of lack of oxygen.

165. PLT212 FEX

From a standpoint of toxicity and corrosion hazard, which fire extinguishing agent is safest to use in turbojet airplanes?

A) Carbon dioxide.

B) Methyl bromide.

C) Chlorobromomethane.

166. PLT212 FEX

Which indicates that a fire extinguishing system has been intentionally discharged into a turbojet engine?

A) Missing red disc on the side of the fuselage.

B) Missing green disc on the side of the fuselage.

C) Missing yellow disc on the side of the fuselage.

167. PLT212 FEX

On a built-in carbon dioxide fire extinguishing system, how is a thermal discharge detected?

A) The thermal plug is missing from the side of the bottle.

B) The red plastic disc in the thermal discharge line is missing.

C) The yellow plastic disc in the thermal discharge line is discolored.

168. PLT139 FEX

How does the thermocouple in a fire detection system cause the warning system to operate?

A) Heat increases electrical resistance.

B) Heat generates a small electrical current.

C) Heat causes expansion and a ground to form.

169. PLT139 FEX

Which type of fire detector circuit can continue to function with either one open or one short in the detector loops?

A) Continuous loop.

B) Two-wire thermal switch.

C) Single-wire thermal switch.

170. PLT473 FEX

The purpose of a servo tab is to

A) allow lower control pressures to move large main flight controls.

B) induce flight control feedback forces by deflecting in the proper direction when a primary flight control surface moves.

C) prevent a control surface from moving to a full deflection position due to aerodynamic forces.

171. PLT251 FEX

Why are jet fuels more susceptible to water contamination than aviation gasoline?

A) Jet fuel has a higher viscosity than gasoline.

B) Jet fuel is lighter than gasoline, and suspends water easier.

C) Condensation is greater because of large temperature changes at high altitudes.

172. PLT499 FEX

(Refer to figure 9.) Combustion takes place in which location?

A) Location 2.

B) Location 4.

C) Location 7.

173. PLT108 FEX

What determines the viscosity of Type 1 deicing/anti-icing fluid?

A) Temperature.

B) Thickening agents.

C) Dispensing equipment.

174. PLT208 FEX

Which frequency is preferred to declare an emergency to ATC?

A) 121.5 Mhz VHF.

B) 243.0 Mhz UHF.

C) The one in use.

175. PLT497 FEX

Which transponder code means the airplane is being forced to a new destination?

A) 7500.

B) 7600.

C) 7700.

176. PLT388 FEX

How long shall cockpit voice recorder and flight recorder data be kept in the event of an accident or occurrence resulting in termination of the flight?

A) 60 days.

B) 90 days.

C) 120 days.

177. PLT409 FEX

What is the flight time limitation for flag operations that requires two pilots and at least one additional flight crewmember?

A) 100 hours during any 30-day period.

B) 300 hours during any 3 calendar months.

C) 1,000 hours during any 12 calendar-month period.

178. PLT388 FEX

Which factors must be recorded by the approved flight recorder?

A) Airspeed, time, altitude, vertical acceleration, and heading.

B) Time, true altitude, calibrated airspeed, vertical speed, and heading.

C) Elapsed time, airspeed, altitude, vertical acceleration, and magnetic course.

179. PLT203 FEX

Which is true concerning the troposphere?

A) It extends to a uniform height at all latitudes.

B) It is thicker over the Equator than over the poles.

C) It is the dividing line between the stratosphere and the atmosphere.

180. PLT173 FEX

What atmospheric condition will decrease air density?

A) Decreasing humidity.

B) Decreasing pressure.

C) Decreasing temperature.

181. PLT305 FEX

A purpose of leading edge slats on high performance wings is to

A) increase lift at relative slow speeds.

B) improve aileron control during low angles of attack.

C) direct air from the low-pressure area under the leading edge along the top of the wing.

182. PLT305 FEX

Which of the following is considered an auxiliary flight control?

A) Ruddervator.

B) Upper rudder.

C) Leading-edge flaps.

183. PLT523 FEX

The purpose of vortex generators mounted on the horizontal stabilizer is to

A) decrease drag at high airspeeds.

B) increase elevator effectiveness at high speeds.

C) prevent flow separation over the elevator at very slow speeds.

184. PLT315 FEX

The speed at which the airflow over the wing first reaches the speed of sound is known as the

A) Reynolds number.

B) transonic index.

C) critical Mach number.

185. PLT134 FEX

Compared to a no-wind condition, what effect would a 20 knot headwind component have on takeoff performance?

A) The effect of wind on initial acceleration will result in a longer takeoff roll.

B) The airplane will reach critical engine failure indicated airspeed at a lower groundspeed.

C) Critical engine failure speed and actual groundspeed will be the same as in a zero-wind condition.

186. PLT244 FEX

When will power applications cause the greatest change in airplane trim and stability?

A) When on a power approach at low airspeeds.

B) Operation at high gross weight and low airspeed.

C) When power is applied simultaneously with a configuration change.

187. PLT214 FEX

Shock-induced separation of airflow occurring symmetrically near the wing root of a sweptback wing may result in

A) severe porpoising due to an attempt to recover control while under reverse command.

B) a high-speed stall and sudden pitchup due to the center of pressure moving forward on the wing.

C) a severe diving moment, due to the center of pressure moving aft on the wing and a decrease of downwash on the horizontal tail.

188. PLT214 FEX

The purpose of sweeping wings back approximately 30° to 35° is to

A) minimize dutch roll.

B) reduce high-speed drag.

C) provide aileron control when the root of the wing approaches the critical angle of attack.

189. PLT248 FEX

What will cause an airplane to skid in flight when entering a turn?

A) Too much speed without enough bank.

B) Too much bank without enough rudder.

C) Too much rudder without enough bank.

190. PLT095 FEX

During flight with zero angle of attack, the pressure along the upper surface of the wing will be

A) equal to atmospheric pressure.

B) less than atmospheric pressure.

C) greater than the pressure below the wing.

191. PLT244 FEX

The purpose of airplane wing dihedral angle is to

A) increase lateral stability.

B) increase longitudinal stability.

C) increase lift coefficient of the wing.

192. PLT244 FEX

What is the primary source of directional stability for an airplane?

A) CG position.

B) Vertical tail.

C) Horizontal tail.

193. PLT502 FEX

What is the significance of a flashing red ATCT light gun signal?

A) Vehicles or personnel should clear the taxiway.

B) Aircraft in flight should exercise extreme caution.

C) Aircraft on the ground should return to their starting point on the airport.

194. PLT124 FEX

What must happen to true airspeed to maintain the same angle of attack in level flight, when the air density changes?

A) The airspeed must increase when the air density decreases.

B) The airspeed must increase when the air density increases.

C) The airspeed must decrease when the air density decreases.

195. PLT124 FEX

An airplane is climbing at Mach .78. The true airspeed will

A) increase with altitude.

B) increase as pressure decreases.

C) decrease as the temperature decreases.

196. PLT002 FEX

(Refer to figure 2.) Compute the V speeds for the following conditions.

| | |
|---|---|
| Gross weight | 250,000 lb |
| Pressure altitude | 428 ft |
| OAT | +80 °F |
| Flaps | 25° |
| Tailwind | 5 kts |
| Airport | SEA RWY 34 |

A) V1 118, VR 132, V2 145.

B) V1 117, VR 133, V2 144.

C) V1 121, VR 133, V2 144.

197. PLT019 FEX

To which elevation should the cabin altitude be set for the following landing conditions?

| | |
|---|---|
| Altimeter | 30.12 |
| Field elev | 6172 ft |
| Airplane cabin depressurized | 500 ft AGL |
| Cabin pressure controller calibrated to | 29.92 |

A) 6,472 feet.

B) 6,672 feet.

C) 6,792 feet.

198. PLT220 FEX

Which is a characteristic of the constant Mach cruise control procedure?

A) EPR is increased as aircraft weight decreases.

B) Thrust is reduced as aircraft weight decreases.

C) True airspeed decreases as the outside air temperature (OAT) increases.

199. PLT007 FEX

(Refer to figure 13.) Determine the go-around EPR's for these conditions.

| | |
|---|---|
| Pressure altitude | 1,000 ft |
| TAT | 0 °C |
| A/C bleeds | No. 2 and 3 ON |
| | No. 1 OFF |
| Anti-ice | Eng. ON |

A) Eng. 1, 2.12; Eng. 2, 2.15; Eng. 3, 2.12.

B) Eng. 1, 2.16; Eng. 2, 2.11; Eng. 3, 2.16.

C) Eng. 1, 2.16; Eng. 2, 2.08; Eng. 3, 2.12.

200. PLT130 FEX

The ratio of NM per hour to fuel flow in pounds per hour identifies which item relating to airplane performance?

A) Specific range.

B) Specific fuel flow.

C) Specific fuel consumption.

201. PLT078 FEX

All 14 CFR 139 airports must report

A) accident and incident data annually.

B) noise complaint statistics for each departure procedure or runway.

C) declared distances for each runway.

202. PLT011 FEX

(Refer to figure 6.) The maximum temperature limitation for takeoff is ISA +34 °C. Which is the highest temperature that will allow a takeoff from a 7,000-foot pressure altitude airport?

A) +87 °F.

B) +91 °F.

C) +95 °F.

203. PLT016 FEX

The captain says to load on 10,000 pounds of fuel. The fuel is 6.5 pounds per gallon. How many liters should the flight engineer order?

A) 5,825.

B) 6,500.

C) 7,110.

204. PLT016 FEX

How many minutes of dump time would be required to reach maximum landing weight at touchdown under the following conditions?

| | |
|---|---|
| Number of engines | 3 |
| Cruise weight | 171,000 lb |
| Max. landing weight | 142,500 lb |
| Average fuel flow during dumping and descent to touchdown | 3,170 lb/hr/eng |

| | |
|---|---|
| Time from start dump to landing | 19 min |
| Fuel dump rate | 2,300 lb/min |

A) 7.7 minutes.

B) 11.1 minutes.

C) 12.4 minutes.

205. PLT012 FEX

An airplane has been cruising for 2 hours and 15 minutes at a speed of Mach .82. Total fuel consumed during this period has been 27,250 pounds. If Mach 1.0 is 595 knots, what has been the NM per 1,000 pounds of fuel?

A) 40.3 NM/1,000 pounds.

B) 43.7 NM/1,000 pounds.

C) 46.4 NM/1,000 pounds.

206. PLT117 FEX

Which is a reason for heating cockpit windows?

A) Deicing.

B) Anti-icing.

C) Prevent thermal shock.

207. PLT499 FEX

What is the most prevalent condition for engine icing?

A) High-engine speed in flight.

B) Low-engine speed on the ground.

C) High-engine speed on the ground.

208. PLT109 FEX

How may the state of charge of a lead-acid battery be determined?

A) Ammeter.

B) Voltmeter.

C) Hydrometer.

209. PLT109 FEX

What causes thermal runaway in a nickel-cadmium battery?

A) Low temperatures and high discharge rates.

B) Deep rapid discharges and low charge rates.

C) High temperatures and constant-voltage charging.

210. PLT109 FEX

What type of gas is released by a nickel-cadmium battery during overcharging?

A) Toxic nickel hydroxide.

B) Oxygen and explosive hydrogen.

C) Highly combustible acetylene and oxygen.

211. PLT207 FEX

What chemical is used for the electrolyte in nickel-cadmium dry cells?

A) Nickel oxide.

B) Nickel hydroxide.

C) Potassium hydroxide.

212. PLT109 FEX

If the airplane is equipped with a battery rated to deliver 45 amperes for 2.5 hours, what is the ampere-hour rating?

A) 90.0 ampere-hour.

B) 18.0 ampere-hour.

C) 112.5 ampere-hour.

213. PLT207 FEX

Which is a feature of a trip free circuit breaker?

A) It is impossible to manually hold it in the closed position.

B) It can be held in the closed position to power emergency circuits.

C) It will tolerate more amperage than its rated capacity and heavy overloads can be carried for a short time.

214. PLT207 FEX

In aircraft electrical systems, automatic reset circuit breakers

A) are not used as circuit protective devices.

B) are used in all circuits essential to safe operation of the aircraft.

C) are found in locations where only temporary overloads are encountered.

215. PLT207 FEX

What is the difference between a relay and a solenoid?

A) Relays have movable cores.

B) Solenoids have movable cores.

C) Relays are used as mechanical control devices.

216. PLT207 FEX

Fuses are sized to carry no more current than

A) the generator will energize.

B) the wires can carry.

C) a holder will use.

217. PLT207 FEX

What type voltage will be produced if an ac generator is being driven, but there is no field excitation?

A) Real voltage.

B) Residual voltage.

C) Reactive voltage.

218. PLT207 FEX

What speed does a frequency meter give a direct indication of?

A) Engine N2.

B) Generator RPM.

C) CSD input speed.

219. PLT207 FEX

Which is a purpose of a transformer rectifier?

A) Converts 115 volts ac, 400-Hz to 28 volts dc.

B) Changes dc to alternating 26 volts or 115 volts, 400-Hz power.

C) Operates emergency flight instruments and radios from the airplane battery.

220. PLT207 FEX

Which is a feature of a parallel bus electrical system?

A) External power may be paralleled with operating generators.

B) The electrical load is automatically redistributed when one generator fails.

C) Each generator supplies power separately from the other generators to its respective bus.

221. PLT207 FEX

Which are protective functions of an ac generator control unit?

A) Reverse current, overexcitation, and overvoltage.

B) Undervoltage, differential fault, and manual paralleling.

C) Generator underspeed and bus-tie circuit-breaker automatic closing.

222. PLT207 FEX

What is residual voltage?

A) Voltage produced that is not in phase with the current.

B) Voltage stored in the generator exciter output windings.

C) Voltage produced by permanent magnets which starts the ac generator output.

223. PLT207 FEX

How are electrical generators rated?

A) Watts at rated voltage.

B) Amperes at rated voltage.

C) Voltage at rated amperes.

224. PLT207 FEX

What increases or decreases the voltage of a generator so it carries its share of the load?

A) Current limiter.

B) Paralleling circuit.

C) Reverse current cut-out relay.

225. PLT207 FEX

What causes a surge of current when incandescent lamps or electric heaters are first turned on? The resistance of filaments or elements

A) increases when heated.

B) is high until they are heated by the current.

C) decreases as the temperature reaches maximum.

226. PLT207 FEX

What is an advantage of using 115 volts, 400-Hz alternating current?

A) High voltage and low current reduces wire size and weight requirements.

B) Commutators may be used with ac motors to decrease repair intervals and costs.

C) The ac single-phase induction motors are self-starting, making it possible to use lightweight motors.

227. PLT207 FEX

Which type of terminal is considered unsatisfactory for general electrical systems?

A) Swaged.

B) Crimped.

C) Soldered.

228. PLT207 FEX

What is a purpose of electrical bonding jumpers?

A) Decrease the probability of lightning damage to such elements as control hinges.

B) Minimize electrolytic corrosion by connecting the airplane parts to form an integral unit.

C) Provide a high-resistance path for electrical equipment, thereby eliminating ground wires.

229. PLT207 FEX

What is the purpose of null field dischargers?

A) Decrease the probability of lightning damage to such elements as control hinges.

B) Dissipate static charges from control surfaces into the air to prevent radio interference.

C) Prevent radio static noise by equalizing charges produced in the aircraft structure.

230. PLT207 FEX

What unit of power is used in dc electrical circuits?

A) Volts.

B) Watts.

C) Amperes.

231. PLT327 FEX

What is the indication of a thermal discharge of a gaseous oxygen system?

A) The blowout disk is ruptured.

B) The pressure gauge indicates zero.

C) The heat sensitive paint marks change from white to black.

232. PLT326 FEX

What oxygen flow condition should exist if the oxygen regulator selector is placed in the emergency position and the supply lever is on?

A) 100 percent oxygen available on demand.

B) Continuous flow of diluted oxygen under positive pressure.

C) Continuous flow of 100 percent oxygen under positive pressure.

233. PLT327 FEX

What is one danger of any oxygen leak?

A) Oxygen being highly flammable may cause combustible materials to burn intensely.

B) Combustible materials will ignite more rapidly and burn with greater intensity in oxygen rich conditions.

C) Any ignition source may ignite highly explosive oxygen which over a period of time saturates the surroundings in poorly vented areas.

234. PLT326 FEX

What is an advantage of a chemical over a gaseous oxygen system?

A) Fire hazards are reduced by eliminating oxygen lines.

B) Chemical systems may be shutoff at any time after they are activated.

C) Reliability is improved by interconnecting individual chemical units.

235. PLT326 FEX

What type of oxygen system is used for passengers?

A) Demand.

B) Constant-flow.

C) Diluter-demand.

236. PLT525 FEX

(Refer to figure 3.) What is the approximate duration of the passenger oxygen system for the conditions shown?

| | |
|---|---|
| Cabin altitude | 15,000 ft |
| Passengers | 120 |
| Bottle pressure | 1,500 PSI |

A) 19 minutes.

B) 23 minutes.

C) 25 minutes.

237. PLT108 FEX

When may rain repellent be applied to a windshield?

A) Prior to entering rain.

B) After it starts raining.

C) Whenever the windshield is dirty.

238. PLT139 FEX

When an airplane is equipped with a continuous-loop fire detection system, which is the most common cause of false fire warnings?

A) Moisture in the system.

B) Worn clamps, vibration and chafing of sensor loops.

C) Improper routing or connection of detector loops.

239. PLT346 FEX

Which of the following is considered a primary flight control?

A) Slats.

B) Elevator.

C) Dorsal fin.

240. PLT476 FEX

What is a disadvantage of a stabilizer and elevator located at the top of the vertical fin?

A) Heavier structure.

B) Undesirable spin characteristics.

C) Less effective fin and rudder due to the end plate action of the stabilizer location.

241. PLT139 FEX

When will the flap position warning system sound an alarm in the cockpit?

A) When the power lever is advanced and the flaps are positioned down.

B) When the power lever is retarded and the flaps are positioned down.

C) When the power lever is advanced and the flaps are not positioned for takeoff.

242. PLT473 FEX

Which of the following is considered a secondary flight control?

A) Rudder.

B) Servo tab.
C) Inboard aileron.

243. PLT473 FEX
A purpose of ground spoilers is to
A) reduce the wing's lift upon landing.
B) aid in rolling an airplane into a turn.
C) increase the rate of descent without gaining airspeed.

244. PLT118 FEX
Regarding the installation of all electric gyro instruments, which is correct?
A) All electric instruments must operate off DC current.
B) Each flight instrument must have a redundant vacuum counterpart.
C) The instruments must have some type of failure indicator showing a loss of power.

245. PLT252 FEX
How is emergency fuel jettisoning accomplished?
A) Through individual outlets in each tank.
B) Through a common manifold and outlet.
C) Through pump pressure into the crossfeed manifold and out the vent lines.

246. PLT251 FEX
A safety advantage provided by a pressure fueling system is that it
A) reduces the time required for fueling.
B) reduces the chances for fuel contamination.
C) eliminates aircraft skin damage from hoses and nozzles.

247. PLT255 FEX
(Refer to figure 25.) How many liters of fuel are equal to 1,840 U.S. gallons?
A) 6,964.
B) 8,355.
C) 10,046.

248. PLT253 FEX
Which publication determines when an airplane may be flown with a fuel leak?
A) FAR Part 25.
B) The applicable manufacturer's manual.
C) AC 65-9A, Airframe and Powerplant Mechanics General Handbook.

249. PLT273 FEX
What action should be taken in case of eye contact with any hydraulic fluid?
A) Apply an aesthetic eye dressing.
B) Flush thoroughly with soap and water.
C) Flush with water and consult a doctor.

250. PLT273 FEX
What should hydraulic flexible hose be inspected for on preflight?

A) Slack between fittings.

B) Hose supports at least every eighteen inches.

C) Layline identification marks spiral clockwise.

251. PLT138 FEX

When inflating tires from a high pressure bottle, always

A) use industrial oxygen.

B) use a pressure regulator on the bottle.

C) inflate directly from the nitrogen bottle slowly.

252. PLT337 FEX

During the walkaround inspection, you observe covers over the pitot probes. Which items will be affected if the covers are not removed?

A) Airspeed, altimeter, and autopilot.

B) Flight recorder, airspeed, and autopilot.

C) Flight recorder, autopilot, instantaneous vertical speed indicator, and airspeed.

253. PLT337 FEX

What will result if the instrument static pressure line becomes disconnected inside a pressurized cabin during cruise flight?

A) The altimeter and airspeed indicator will both read low.

B) The altimeter and airspeed indicator will both read high.

C) The altimeter will read low and the airspeed indicator will read high.

254. PLT499 FEX

Which is the main advantage of an APU's centrifugal flow compressor?

A) High-pressure rise per stage.

B) Low starting power requirements.

C) Shorter than an axial compressor.

255. PLT499 FEX

What recovery would be appropriate in the event of compressor stall?

A) Reduce the thrust lever and then rapidly advance the thrust lever to decrease the angle of attack on the compressor blades, creating more airflow.

B) Reduce the thrust lever and then follow the procedures in the AFM/POH/CFM.

C) Advance the thrust lever slowly to increase airflow and decrease the angle of attack on one or more compressor blades.

256. PLT499 FEX

Exceeding the engine temperature limitations may result in

A) discoloration of the compressor blades.

B) rippling of the trailing edge of the compressor blades.

C) hairline cracks at right angles to the turbine blade leading and trailing edges.

257. PLT499 FEX

(Refer to figure 9.) Where is the fan inlet case located?

A) Location 1.

B) Location 2.

C) Location 3.

258. PLT499 FEX

The two basic elements of the turbine section of a turbine engine are the

A) rotor and stator.

B) bucket and expander.

C) impeller and diffuser.

259. PLT502 FEX

(Refer to figure 1.) Which signal at night means stop?

A) Figure 12.

B) Figure 13.

C) Figure 15.

260. PLT212 FEX

What identifies a fire extinguisher used for brake fires?

A) A square with the letter B.

B) A circle with the letter C.

C) A star with the letter D.

261. PLT212 FEX

Which is the most effective extinguishing agent for use on an electrical fire?

A) Carbon dioxide.

B) Methyl bromide.

C) Carbon tetrachloride (Halon 04).

262. PLT330 FEX

A fire in flight can quickly lead to

A) hypemic hypoxia.

B) stagnant hypoxia.

C) fumic hypoxia.

263. PLT318 FEX

What does declaring minimum fuel to ATC imply?

A) Traffic priority is needed to the destination airport.

B) Emergency handling is required to the nearest useable airport.

C) An emergency situation is possible should an undue delay occur.

264. PLT331 FEX

How many hours delay is recommended before going to flight altitudes of up to 8,000 feet after scuba diving without controlled ascent (nondecompression stop)?

A) No restriction.

B) 12 hours.

C) 24 hours.

265. PLT388 FEX

For what purpose may information obtained from cockpit voice recorders and flight data recorders not be used?

A) Identifying malfunctions and irregularities in aircraft systems.

B) Determining causes of accidents and occurrences under investigation by the National Transportation Safety Board (NTSB).

C) Determining any certificate action or civil penalty arising out of an accident or occurrence.

266. PLT440 FEX

Which flight crewmember nonessential conversation is allowed below 10,000 feet?

A) Discussing stock market reports during taxi.

B) None.

C) Confirming airplane logbook entries during climb when clear of the airport traffic area.

267. PLT405 FEX

Each crewmember shall have available for individual use on each flight a

A) quick-donning type oxygen mask.

B) flashlight in good working order.

C) hand fire extinguisher suitable for extinguishing Class A, B, and C fires.

268. PLT386 FEX

A crewmember certificate may be issued by the FAA to flight crewmembers on U.S. registered aircraft engaged in

A) international air commerce.

B) flight crewmember training only.

C) supplemental air carrier operations.

269. PLT451 FEX

Which requirement must be met by all flight engineers every 6 months before they can serve on an air carrier flight under 14 CFR part 121?

A) Line check or route check.

B) Recurrent flight and ground training.

C) 50 hours of flight time or a flight check.

270. PLT438 FEX

How much supplemental oxygen must pressurized air carrier transport powered airplanes carry for each flight crewmember on flight deck duty when operating at flight altitudes above 10,000 feet?

A) A minimum of 1 hours` supply.

B) A minimum of 2 hours` supply.

C) A minimum of 30 minutes` supply.

271. PLT410 FEX

During what situation may an airplane requiring a flight engineer be operated under 14 CFR part 91?

A) Test flight.

B) Revenue cargo flight.

C) Passenger flight with compensation.

272. PLT263 FEX

A common type of ground- or surface-based temperature inversion is that produced by

A) ground radiation on clear cool nights when the wind is light.

B) warm air being lifted rapidly in the vicinity of mountainous terrain.

C) the movement of colder air over warm air, or the movement of warm air under cold air.

273. PLT274 FEX

An in-flight condition necessary for structural icing to form is

A) visible moisture.

B) stratiform clouds.

C) cirrostratus clouds.

274. PLT344 FEX

What is the lowest temperature that water droplets may remain in a liquid state?

A) 0 °C.

B) 0 °F.

C) -40 °C.

275. PLT132 FEX

What will be the approximate altimeter indication after failing to reset the local barometric pressure of 30.57 after descending from FL 250 to a field elevation of 650 feet?

A) Sea level.

B) 715 feet.

C) 1,300 feet.

276. PLT021 FEX

(Refer to figure 45.) What is the maximum payload under operating conditions No. 1?

A) 19,300 pounds.

B) 24,000 pounds.

C) 43,300 pounds.

277. PLT314 FEX

The CG of an airplane is computed along the

A) lateral axis.

B) vertical axis.

C) longitudinal axis.

278. PLT313 FEX

The CG of a large airplane is normally located in the fuselage at a point expressed in

A) inches from the forward CG limit.

B) percent of mean aerodynamic chord aft of LEMAC.

C) percentage of MAC aft of the leading edge of the wing.

279. PLT314 FEX

Weight X Arm divided by the Reduction Factor is the formula used to determine

A) index units.

B) total moments.

C) CG from LEMAC.

280. PLT021 FEX

(Refer to figures 46 and 47.) What is the airplane weight at the end of cruise under operating conditions No. 2?

A) 100,860 pounds.

B) 101,900 pounds.

C) 110,900 pounds.

281. PLT021 FEX

What is the maximum payload under these conditions?

| | |
|---|---|
| Basic operating weight | 150,000 lb |
| Max. zero fuel weight | 230,000 lb |
| Max. landing weight | 245,000 lb |
| Max. takeoff weight | 320,000 lb |
| Fuel tank load | 94,500 lb |
| Est. fuel burn en route | 71,500 lb |

A) 72,000 pounds.
B) 80,000 pounds.
C) 84,000 pounds.

282. PLT021 FEX

How much weight can be added at Station 1600 without exceeding the aft CG limit?

| | |
|---|---|
| Aircraft weight | 83,000 lb |
| CG location | Station 900 |
| Aft CG limit | Station 905 |

A) 166 pounds.
B) 597 pounds.
C) 697 pounds.

283. PLT021 FEX

Based on this information, the CG will be located how far aft of datum?

| | |
|---|---|
| Weight X | 1,330 lb at 117 in. aft of datum |
| Weight Y | 1,110 lb at 110 in. aft of datum |
| Weight Z | 750 lb at 210 in. aft of datum |

A) 126.43 inches.
B) 136.43 inches.
C) 142.43 inches.

284. PLT021 FEX

(Refer to figure 34.) What is the new CG after adding weight under operating conditions No. 1?
A) 20.9 percent.
B) 25.8 percent.
C) 27.9 percent.

285. PLT021 FEX

(Refer to figure 37.) What is the loaded CG in percent of MAC under operating conditions No. 3?
A) 29.9 percent.
B) 30.6 percent.
C) 32.0 percent.

286. PLT021 FEX

(Refer to figure 41.) What is the new CG after adding weight under operating conditions No. 1?
A) 21.1 percent.
B) 23.4 percent.
C) 26.7 percent.

287. PLT021 FEX

(Refer to figure 33.) What is the loaded CG in percent of MAC under operating conditions No. 1?

A) 24.8 percent.

B) 25.8 percent.

C) 26.5 percent.

288. PLT021 FEX

Before a cargo change is made, the following information is known about an airplane.

| | |
|---|---|
| Aircraft weight | 175,000 lb |
| CG | 29.5 percent of MAC |
| Length of MAC | 860.2 to 1040.9 in |

If 6,500 pounds of cargo is removed from an average location of Station 1170.0, what is the new CG relative to MAC?

A) 24.0 percent.

B) 26.8 percent.

C) 27.6 percent.

289. PLT021 FEX

(Refer to figure 31.) Determine the CG in percent of MAC.

| | |
|---|---|
| Basic operating weight | 105,000 lb |
| Basic operating index (Moment/1,000) | 92,827.0 |
| MAC | 860.2 to 1040.9 in |
| Passenger load: | |
| Fwd compartment | 22 |
| Aft compartment | 95 |
| Cargo load: | |
| Fwd hold | 1,950 lb |
| Aft hold | 900 lb |
| Fuel load: | |
| Tanks 1 and 3 (each) | 11,500 lb |
| Tank 2 | Full |

A) 26.2 percent of MAC.

B) 27.1 percent of MAC.

C) 27.9 percent of MAC.

290. PLT021 FEX

The gross weight of the airplane is 155,000 pounds. How much weight must be moved from Station 1028.0 to Station 582.0 to move the CG forward 1.2 inches?

A) 352 pounds.

B) 418 pounds.

C) 516 pounds.

291. PLT121 FEX

What minimum weight of cargo must be shifted from the aft to the forward compartment to bring the CG within limits?

| | |
|---|---|
| Total weight | 165,000 lb |
| MAC | Station 860.2 to 1040.9 |
| CG | 34.0 percent of MAC |
| Aft CG limit | 32.0 percent of MAC |

Cargo centroids:

| | |
|---|---|
| Fwd | 582 in |
| Aft | 1028 in |

A) 740 pounds.

B) 1,032 pounds.

C) 1,338 pounds.

292. PLT021 FEX

May 1,000 pounds of baggage be shifted from Station 30.0 to Station 120.0 without exceeding the aft CG limit?

| | |
|---|---|
| Total weight | 147,500 lb |
| CG location | Station 115.8 |
| Aft CG limit | Station 118.0 |

A) Yes, the CG would be located at Station 115.19.

B) No, the new CG would be located at Station 118.41.

C) Yes, the new CG would be located at Station 116.41.

293. PLT021 FEX

(Refer to figure 31.) Determine the CG in inches aft of datum.

| | |
|---|---|
| Basic operating weight | 105,000 lb |
| Basic operating index (Moment/1,000) | 92,827.0 |
| MAC | 860.2 to 1040.9 in |

Passenger load:

| | |
|---|---|
| Fwd compartment | 27 |
| Aft compartment | 105 |

Cargo load:

| | |
|---|---|
| Fwd hold | 1,800 lb |
| Aft hold | 800 lb |

Fuel load:

| | |
|---|---|
| Tanks 1 and 3 (each) | 11,000 lb |
| Tank 2 | Full |

A) 907.6 inches.

B) 908.2 inches.

C) 910.8 inches.

294. PLT021 FEX

(Refer to figure 43.) What is the new CG after the weight is moved from the forward to the aft location under operating conditions No. 1?

A) 13.5 percent.

B) 14.7 percent.

C) 15.3 percent.

295. PLT021 FEX

What minimum weight of cargo must be shifted from the aft to the forward compartment to bring the CG within limits.

| | |
|---|---|
| Total weight | 150,000 lb |
| MAC | Station 860.2 to 1040.9 |
| CG | 33.5 percent of MAC |

Aft CG limit 32.0 percent of MAC

Cargo centroids:

Fwd 582 in

Aft 1028 in

A) 518 pounds.

B) 912 pounds.

C) 1,050 pounds.

296. PLT021 FEX

(Refer to figure 35.) What is the new CG after the weight is moved from the forward to the aft location under operating conditions No. 1?

A) 18.3 percent.

B) 25.4 percent.

C) 28.7 percent.

297. PLT016 FEX

The captain requests the flight engineer add 2,000 gallons of AVGAS to the tanks. How many liters should the flight engineer order?

A) 3,110.

B) 5,600.

C) 7,570.

298. PLT016 FEX

The captain requests the flight engineer add 500 gallons of AVGAS to the tanks. How many liters should the flight engineer order?

A) 1,893.

B) 986.

C) 1,471.

299. PLT109 FEX

What is the nominal voltage rating of a fully charged lead-acid battery containing six cells?

A) 6 volts.

B) 12 volts.

C) 24 volts.

300. PLT109 FEX

What will neutralize the electrolyte from a lead-acid battery?

A) Soap and water.

B) Bicarbonate of soda.

C) Boric acid, a solution of acetic acid, lemon juice, or vinegar.

301. PLT137 FEX

What is the purpose of ventilating air in a combustion heater?

A) Keeps the overhead thermal switch cool.

B) Transports heat to locations where it is needed.

C) Provides combustion air for ground blower operation.

302. PLT365 FEX

If the line between the MAP gauge and the engine induction system has a leak, the gauge will indicate
A) ambient pressure.
B) 29.92 inches of MAP.
C) low when operating at a MAP above atmospheric pressure.

303. PLT365 FEX
What is the sequence of events for a reciprocating engine to convert chemical to mechanical energy?
A) Ignition, compression, power, and exhaust.
B) Compression, ignition, intake, power, and exhaust.
C) Intake, compression, ignition, power, and exhaust.

304. PLT249 FEX
Preignition is indicated by
A) intermittent firing and low cylinder temperatures.
B) explosions from the exhaust system with torching or afterburning.
C) engine roughness and a sudden increase in cylinder head temperatures.

305. PLT021 FEX
(Refer to figure 40.) What is the loaded CG in percent of MAC under operating conditions No. 1?
A) 28.9 percent.
B) 30.5 percent.
C) 32.9 percent.

306. PLT038 FEX
(Refer to figures 18 and 19.) What is the minimum torque required for takeoff under operating conditions No. 1?
A) 12,400 inch-pounds.
B) 16,600 inch-pounds.
C) 18,000 inch-pounds.

307. PLT012 FEX
(Refer to figure 27.) What is the total fuel burn for a 1,500 NM cruising flight under operating conditions No. 4?
A) 18,860 pounds.
B) 19,210 pounds.
C) 22,280 pounds.

308. PLT207 FEX
Thermal protectors are used to
A) stop windshield heaters from melting the glass.
B) protect motors from overheating.
C) allow pitot heaters to melt any icing near the tube.