Question block created by wizard

This exam contains 92 questions.

1. The kinetic energy of an object is the extra energy which it possesses due to its...

o (a) heat gained during its development.

• (b) motion.

o (c) weight.

If choice b is selected set score to 1.

2. A turbo prop engine gives...

o (a) a large acceleration to a small mass of air.
o (b) a large acceleration to a large weight of air.

• (c) a small acceleration to a large mass of air.

If choice c is selected set score to 1.

3. Name the modules (parts) of a jet engine from front to rear .

• (a) Air compressor, combustion chamber, turbine wheel, and exhaust duct.

o (b) Air compressor, combustion chamber, cylinders and exhaust duct.
o (c) Turbine wheel, compressor and combustion chamber.

If choice a is selected set score to 1.

4. Which engine has a better stall characteristic?

o (a) Both answers are correct.
o (b) Single spool axial flow engine.

• (c) Multi spool axial flow engine.

If choice c is selected set score to 1.

5. The basic equation for thrust is...

o (a) thrust = force · acceleration.

• (b) thrust = mass · acceleration.

o (c) thrust = mass · velocity.

If choice b is selected set score to 1.

6. The conditions affecting the weight of a given volume of air are: pressure, temperature and humidity, therefore:

- o (a) Density increases as temperature increases.
- o (b) Density decreases as temperature decreases.
- • (c) Density decreases as temperature increases.

If choice c is selected set score to 1.

7. When all factors are combined, it is found that the jet aircraft performs most efficiently at...

- • (a) high speeds and high altitudes.
- o (b) high speeds and low altitudes.
- o (c) low speeds and high altitudes.

If choice a is selected set score to 1.

8. The engine data and engine assembly identification plates are attached to the engine.

What data do these plates provide?

- • (a) Engine specification as designed by the manufacturer.
- o (b) Engine specification as designed by the manufacturer for the aircraft configuration.
- o (c) Aircraft specification as designed by the manufacturer for the engine to be installed.

If choice a is selected set score to 1.

9. What happens to the thrust if temperature increases?

The thrust...

- o (a) increases.
- o (b) does not change except during extremely low temperature (-40 degrees Celsius).
- • (c) decreases.

If choice c is selected set score to 1.

10. When an aircraft is in flight, what accompanies the increase of air speed?

- o (a) temperature.
- o (b) altitude.
- • (c) ram effect.

If choice c is selected set score to 1.

11. How is the effectiveness expressed for an engine intake?

- (a) Pressure recovery.

o (b) Engine power.
o (c) Mass airflow.

If choice a is selected set score to 1.

12. Why are methods like diverter, fence and bleed used?

o (a) To increase the efficiency of the intake at low (subsonic) speeds.

- (b) To avoid boundary layer effect in the intake.

o (c) To restrict the amount of airflow at supersonic speeds.

If choice b is selected set score to 1.

13. What shape does a bifurcated intake have?

o (a) Convergent from front to rear.
o (b) First divergent, then convergent towards the rear.

- (c) Divergent from front to rear.

If choice c is selected set score to 1.

14. What type of anti-icing system is generally installed on turboprop engines?

o (a) Pneumatic anti-ice

- (b) Electrical anti-ice

o (c) Hot air anti-ice

If choice b is selected set score to 1.

15. On an engine with hot air anti-icing, where does the air come from?

o (a) From the opposite engine.
o (b) From the aircraft air system.

- (c) From the engine itself.

If choice c is selected set score to 1.

16. What is the disadvantage of a centrifugal compressor?

- (a) Large frontal areas for a given mass flow.

- (b) Weight.
- (c) Low overall compression ratio.

If choice a is selected set score to 1.

17. Many aircraft APU's use a centrifugal hardware configuration because of its...

- (a) compact size.

- (b) high overall compression ratio.
- (c) high power development and ability to support varies support system.

If choice a is selected set score to 1.

18. Fan blades are normally...

- (a) replaceable in moment weighted pairs.

- (b) not replaced on installed engine.
- (c) cleaned after each flight to maintain efficiency.

If choice a is selected set score to 1.

19. The relative angle of attack of the compressor blade is a result of...

- (a) inlet air velocity and compressor temperature.
- (b) compressor rpm and temperature.

- (c) inlet air velocity and compressor rpm.

If choice c is selected set score to 1.

20. A compressor stall is best explained as...

- (a) the smooth rearwards flow of air comes to a stop.

- (b) air stops flowing smoothly rearwards on engine shutdown.
- (c) trust reverser.

If choice a is selected set score to 1.

21. The purpose of the variable inlet guide vanes is to direct the incoming air into the...

- (a) turbine at the correct angle so as to achieve the optimum angle of flow to the first stage.
- (b) combustion chamber at the correct angle so as to achieve the optimum angle of attack.

- (c) compressor at the correct angle so as to achieve the optimum angle of attack of the first stage rotor blades.

If choice c is selected set score to 1.

22. One of the primary limiting factors on pressure ratio in modern designs is that the:

- o (a) air cools down as it is compressed.
- • (b) air heats up as it it compressed.
- o (c) location that the temperature is taken.

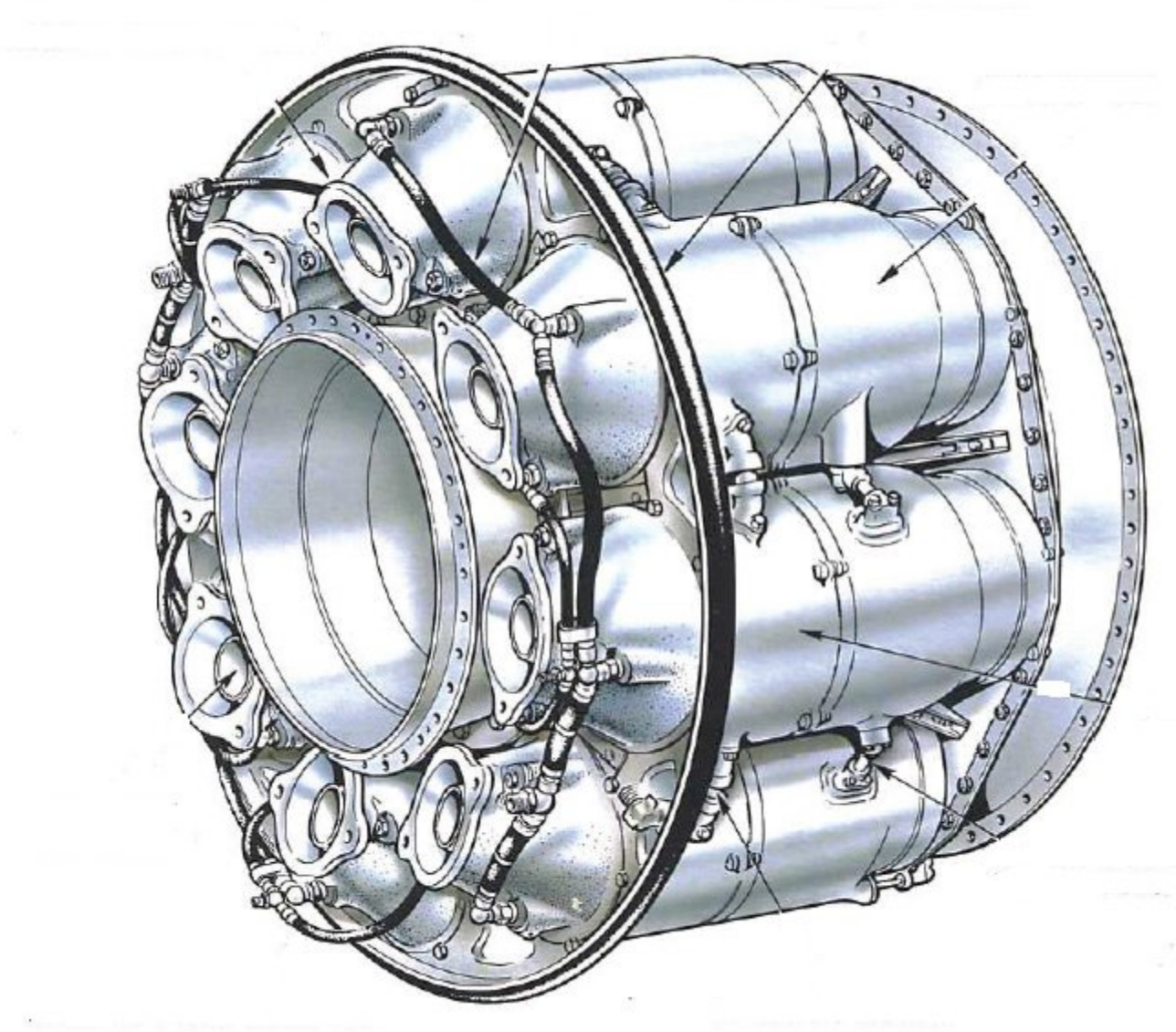
If choice b is selected set score to 1.

23. Where does air coming from the compressor spread out and is provided additional space?

- o (a) S duct.
- • (b) diffuser.
- o (c) nozzle inlet guide vane position.

If choice b is selected set score to 1.

24. What kind of combustion system is shown in the picture?



- o (a) Can type combustion chamber.
- • (b) Multiple combustion chamber.
- o (c) Annular combustion chamber.

If choice b is selected set score to 1.

25. In what zone of the combustion section is the highest temperature?

- o (a) Dilution zone.
- • (b) Primary zone.

o (c) Intermediate zone.

If choice b is selected set score to 1.

26. The nozzle area in a reaction type turbine is....

o (a) convergent.
o (b) divergent.

• (c) constant flow.

If choice c is selected set score to 1.

27. Are nozzle guide vanes hollow? If yes, why?

o (a) No
o (b) Yes, to make them lighter and stronger

• (c) Yes, to allow cooling air to pass through them

If choice c is selected set score to 1.

28. How is turbine blade creep at a constant rate called?

o (a) Tertiary creep.
o (b) Static creep.

• (c) Secondary creep.

If choice c is selected set score to 1.

29. What is the main effect of creep on a blade?

The blade gets...

• (a) stretched.

o (b) thinner.
o (c) smaller.

If choice a is selected set score to 1.

30. What is the function of the inner exhaust cone at the rear face of the turbine disc?

The cone....

o (a) decreases the exhaust area to the rear and maximizes the gas velocity.

• (b) increases the exhaust area to the rear and lowers the gas velocity.

o (c) decreases the exhaust area to the rear and lowers the gas velocity.

If choice b is selected set score to 1.

31. On commercial gas turbine engines the exhaust duct is....

- (a) convergent.

o (b) convergent / divergent.
o (c) divergent.

If choice a is selected set score to 1.

32. In a low bypass engine the bypass flow is mixed after the...

o (a) last stage of compression to reduce noise inside the compressor.
o (b) lower pressure turbine to reduce noise.

- (c) last stage of the turbine.

If choice c is selected set score to 1.

33. Labyrinth Seals are supported with engine...

o (a) oil pressure.

- (b) air pressure.

o (c) springs.

If choice b is selected set score to 1.

34. Why do bearing assemblies often contain a cage?

- (a) To keep the rollers or balls in place.

o (b) To transmit forces to the raceway.
o (c) To make sure lubrication is 100%.

If choice a is selected set score to 1.

35. Engine bearing cavities are sealed with labyrinth seals and are supported....

o (a) with engine oil pressure

- (b) with engine air pressure.

o (c) in a powder substance to insure longer life support.

If choice b is selected set score to 1.

36. At extreme cold starting conditions the prime limiting factor for fuel is:

- (a) Viscosity.

o (b) Smoke point.
o (c) Flashpoint.

If choice a is selected set score to 1.

37. A fuel system icing inhibitor is a fuel additive that prevents....

- (a) the water in the fuel from freezing.

o (b) the water and fuel from freezing.
o (c) the fuel from freezing.

If choice a is selected set score to 1.

38. Why are fuel additives added to fuel?

Additives are added to improve....

o (a) the smell.

- (b) the properties.

o (c) the price.

If choice b is selected set score to 1.

39. Increasing the flashpoint will make fuel safer but....

o (a) a hot start will become more difficult.

- (b) a cold start will become more difficult.

o (c) the fuel consumption will increase drastically.

If choice b is selected set score to 1.

40. Why is it required to wait five minutes after engine shut down before removing the oil filter cap?

o (a) That all oil can drain back to the gearbox.

- (b) It allows the tank pressure to bleed off.

o (c) So that all the oil looses its air through the breather and foaming of oil is reduced.

If choice b is selected set score to 1.

41. When the electronic engine control has to be replaced, what happens with the programming plug?

The programming plug must....

- (a) remain with the engine.

o (b) be reprogrammed for the new electronic engine control.
o (c) be renewed.

If choice a is selected set score to 1.

42. What is the purpose of an engine oil system?

o (a) Bearing lubrication and heating fuel.

- (b) Bearing cooling, lubrication and heating fuel.

o (c) Bearing cooling, lubrication and cooling fuel.

If choice b is selected set score to 1.

43. A cleanable filter is made of....

o (a) paper mesh.
o (b) plastic mesh.

- (c) woven wire.

If choice c is selected set score to 1.

44. The fuel control is an engine driven accessory. It can operate by mechanical, hydraulic, electrical, or pneumatic forces in various combinations.

What is the purpose of the fuel control?

o (a) Control the fuel flow from the aircraft fuel booster pumps.

- (b) Maintain a correct combustion air-to fuel mixture.

o (c) Limit the amount of fuel to the combustion chamber.

If choice b is selected set score to 1.

45. When on the EICAS the fuel bypass message is indicated, where does the signal come from?

o (a) Low pressure fuel pump bypass valve.
o (b) Main pressure fuel pump bypass valve.

- (c) Differential pressure switch.

If choice c is selected set score to 1.

46. The fuel flow transmitter (FFT) uses electromagnetic pulses...

- o (a) generated by the fuel booster pumps.
- o (b) to control the amount of fuel sent to the fuel control unit.
- • (c) to measure the rate of fuel flow.

If choice c is selected set score to 1.

47. What is the purpose of the L.P. pump?

To ensure...

- o (a) that the fuel nozzles get the correct fuel pressure.
- • (b) that enough fuel flow is delivered to the high pressure pump.
- o (c) rapid acceleration when the trottle is opened.

If choice b is selected set score to 1.

48. What is the function of linear variable differential transformers (LVDT)?

- • (a) Feedback signals.
- o (b) Warning signals.
- o (c) Control signals.

If choice a is selected set score to 1.

49. Thrust lever position is transmitted to the EEC via a thrust lever resolver, as Thrust Lever....

- o (a) solenoid energized in a series.
- • (b) angle.
- o (c) cables.

If choice b is selected set score to 1.

50. What is the purpose of the accessory cooling system?

The purpose of the accessory cooling system is...

- o (a) to avoid that engine oil exceeds 653 degrees celsius.
- • (b) to reduce excessive heat on components, thereby extending life and increasing engine efficiency.

- (c) allowing engine components to heat up to operating temperature.

If choice b is selected set score to 1.

51. The cooling air ducts are used to supply air from the high pressure compressor to the high pressure turbine (HPT) area for cooling of...

- (a) exhaust cone.

- (b) internal engine surfaces.

- (c) inlet nozzle vane to the turbine.

If choice b is selected set score to 1.

52. The compressor bleed control is provided for....

- (a) to cool the accessories on the engine.

- (b) improved starting and surge protection.

- (c) overpressure in the engine.

If choice b is selected set score to 1.

53. The exact sequence of the starting procedure is important since there must be...

- (a) oil pressure before rotation of the engine high speed compressor.

- (b) sufficient air flow through the engine to support combustion.

- (c) indication before you can get fuel flow to the engine.

If choice b is selected set score to 1.

54. If the starter were cut off below the self-accelerating speed, the engine could?

- (a) Catch fire externally.
- (b) This is not a problem because the starter would re-engage to continue the starting process.

- (c) Fail to accelerate to idle speed.

If choice c is selected set score to 1.

55. The ignition power supply includes two independent ignition exciters installed on the engine.

Each ignition exciter is...

- (a) of the capacitive-discharge type, converting 115-volt ac to 24-kilovolts dc (nominal).

- (b) an independent battery device, storing its own power.
- (c) converting 115-volt ac to 24-kilovolts ac (nominal).

If choice a is selected set score to 1.

56. When will continuous ignition be selected?

- (a) Only for start-up.
- (b) After take-off.

- (c) For flight in bad weather conditions.

If choice c is selected set score to 1.

57. Why is it required to ground the cable terminal of an ignition system after detaching the cable from the igniter plug?

- (a) To dissipate the energy stored in the system

- (b) To prevent an open in the ignition cable
- (c) To prevent a short in the cable.

If choice a is selected set score to 1.

58. Why is the EGT indication very important?

- (a) It gives a direct relationship to engine power.
- (b) It is the only engine condition monitoring parameter.

- (c) It gives information about the heaviest loaded part, the turbine.

If choice c is selected set score to 1.

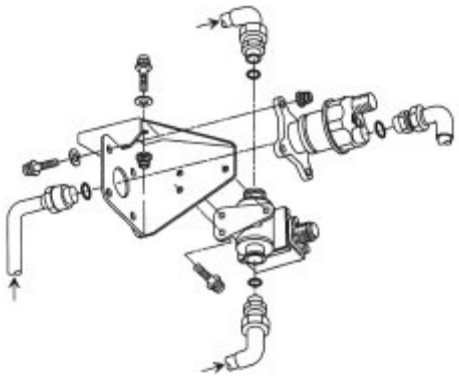
59. What does engine pressure ratio on a modern turbofan engine indicate?

- (a) The air pressure produced by the compressor.
- (b) The air pressure at the exhaust.

- (c) The pressure ratio across the fan.

If choice c is selected set score to 1.

60. The oil pressure transmitter senses the difference between pressure pump delivery pressure and...



- o (a) the ISA parameters.
- • (b) the gear box pressure.
- o (c) the FCOC (Fuel Cooled Oil Cooler).

If choice b is selected set score to 1.

61. The sensors are induction-type tachometers. The tip on each sensor has a permanent magnet with three coil assemblies.

This best describes?

- o (a) Fuel pump pressure indication system.
- • (b) Engine tachometer system.
- o (c) AVM (airborn vibration system).

If choice b is selected set score to 1.

62. Which indication component is using a permanent magnet with three coil assemblies?

- • (a) The engine tachometer system.
- o (b) The airborn vibration system signal conditioner pick up points.
- o (c) The fuel pump pressure indication system.

If choice a is selected set score to 1.

63. Adverse conditions, as far as the engine is concerned, is operation in high ambient temperature and/or high altitude. These are adverse conditions.

Which two systems are available to overcome these conditions?

- o (a) Remove the throttle stops for more thrust.

- (b) Water injection and water / methanol injection

o (c) Turbine case cooling and bleed air control.

If choice b is selected set score to 1.

64. Injection of water into the engine inlet will cool the inlet air and hence its density will...

- (a) increase.

o (b) decrease.
o (c) get thinner.

If choice a is selected set score to 1.

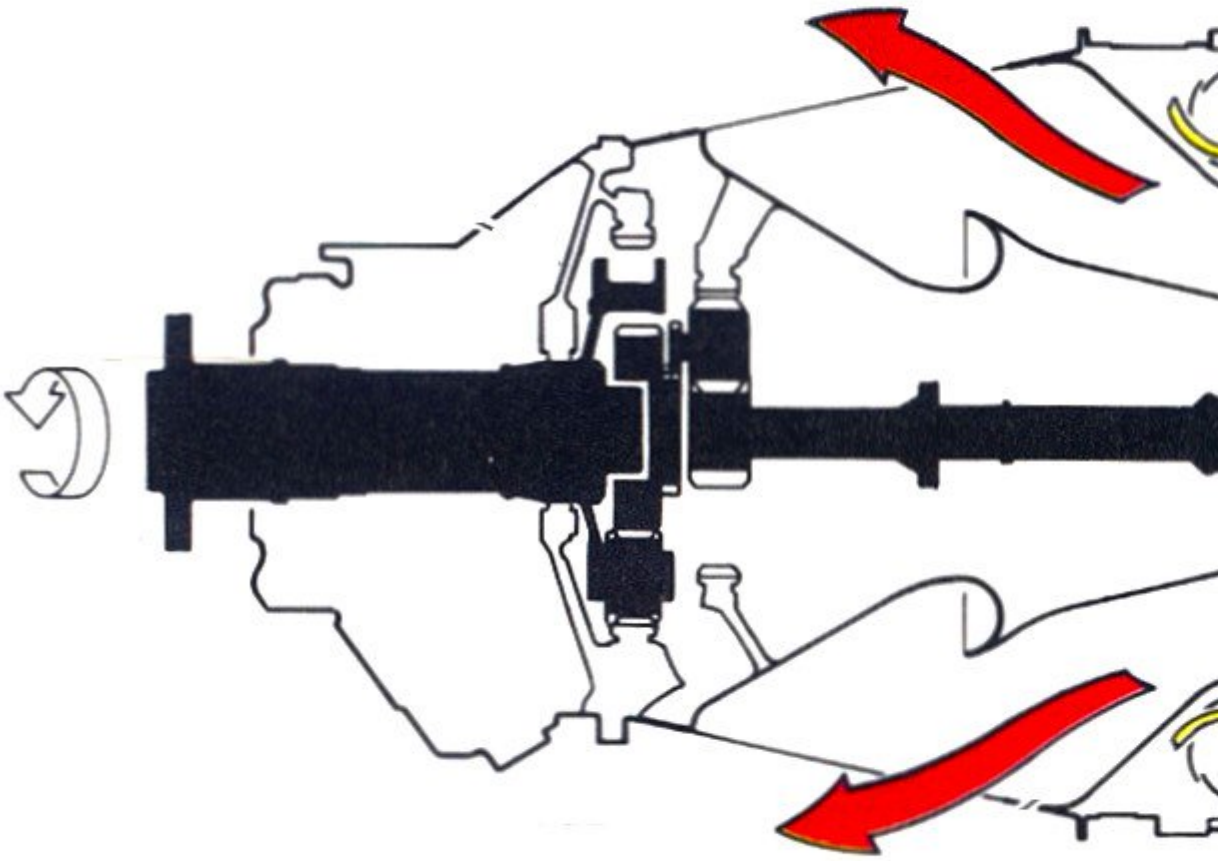
65. The increased thrust is obtained by injecting and burning large quantities of fuel in the specially shaped engine exhaust system. This is referred to as....

o (a) hot shot ignition
o (b) rocket pressure outlet nozzle

- (c) after burner

If choice c is selected set score to 1.

66. What kind of engine is shown in the next picture?



- (a) Fixed turbine type.
- (b) Triple shaft type.

- (c) Free turbine type.

If choice c is selected set score to 1.

67. Which description is the best for: "Epicyclic Planetary Gear Type Reduction Gear"?

- o (a) Mechanically simple and therefore relatively cheap to manufacture.
- o (b) Reduction gear with a rack and pinion.
- • (c) Gear is composed of a central input (sun) gear driving two or more spider mounted planet gears.

If choice c is selected set score to 1.

68. On a typical free turbine turboprop engine the propeller control lever is connected to the...

- o (a) constant speed fuel mixing unit.
- • (b) propeller governor.
- o (c) fuel control unit.

If choice b is selected set score to 1.

69. An turboprop overspeed governor is a backup for the...

- o (a) fly weights.
- o (b) radial governor.
- • (c) propeller governor.

If choice c is selected set score to 1.

70. The parallel spur gear type and the epicyclic type describe...

- o (a) excitation gear systems.
- o (b) eccentric gear systems.
- • (c) reduction gear systems.

If choice c is selected set score to 1.

71. The most commonly used turbo-shaft engines today are from the...

- o (a) single shaft type.
- • (b) free-turbine type.
- o (c) fixed-turbine type.

If choice b is selected set score to 1.

72. The most commonly used freewheeling unit on helicopters is the...

- (a) sprague clutch.

o (b) wet sink clutch assembly.
o (c) centrifugal clutch.

If choice a is selected set score to 1.

73. The drive shaft and flexible coupling system for a helicopter consist of...

- (a) a shaft with two flexible couplings attached at each end.

o (b) a direct shaft that can only withstand heavy loads at low RPM.
o (c) a direct chain drive with coupling, that can only withstand heavy loads at low RPM.

If choice a is selected set score to 1.

74. The APU fuel system receives fuel from...

o (a) ground support system.

- (b) the airplane wing tanks through a shrouded line.

o (c) external fuel source during operation.

If choice b is selected set score to 1.

75. There are two separate APU protective shutdown systems in the ECU.

They are...

o (a) discrete and digital.

- (b) analog and digital.

o (c) analog and discrete.

If choice b is selected set score to 1.

76. What type of compressor and combustion chamber is used in the power section of an APU?

o (a) Axial flow compressor to save space and annular combustion chamber.
o (b) Axial flow compressor to save space and can combustion chamber.

- (c) Centrifugal compressor with a reverse flow annular combustion chamber.

If choice c is selected set score to 1.

77. A small turbine engine, known as the power section, driving a load compressor to produce pneumatic power.

What does the load compressor also drive?

- (a) An accessory gearbox providing an attach point for a generator.

o (b) An accessory gearbox providing an attach point for an air compressor.
o (c) A single shaft to a DC generator.

If choice a is selected set score to 1.

78. What causes the majority of outside noise in a high-bypass engine?

o (a) Core Engine.

- (b) LP fan.

o (c) HP fan.

If choice b is selected set score to 1.

79. When you need no overhead crane or other external hoist devices to change an engine.

This is a...

o (a) Single hoist equipment.
o (b) Chain hoist equipment.

- (c) Bootstrap equipment.

If choice c is selected set score to 1.

80. The fan cowl panels open to provide access to components on the...

o (a) engine combustion chamber

- (b) engine fan case

o (c) inlet cowling

If choice b is selected set score to 1.

81. On very large engines the cowlings and access panels can be so heavy that it will require assistance to open.

How is this performed?

- (a) Hydraulic or mechanical assistance.

o (b) It is not required to have access because designers took this into consideration.

- o (c) Simply by the use of more people to raise or lower the section.

If choice a is selected set score to 1.

82. Extinguishing agent is discharged through a...

- (a) pipeline system

- o (b) solid state generator the a pipeline system is too heavy for large airplanes.
- o (c) solid material that melts on heat contact.

If choice a is selected set score to 1.

83. Turbine case cooling is used to....

- (a) reduce turbine rotor vane clearences and improve engine efficiency.

- o (b) improve gasturbine starting characteristics at high altitude.
- o (c) improve service life of the high pressure compressor.

If choice a is selected set score to 1.

84. The fire extinguishing system includes...

- (a) a cockpit control switch, fire extinguishing agent containers, and an agent distribution system

- o (b) a cockpit control switch, fire extinguishing agent containers in the flight deck and an agent distribution system at the wing tip.
- o (c) only protection function

If choice a is selected set score to 1.

85. This fire detector consists of a sensor and a responder. The sensor tube contains a gas charged core material and helium under pressure.

What system is this?

- o (a) Fenwall.

- (b) Systron-Donner

- o (c) Kidde

If choice b is selected set score to 1.

86. Engine areas should be inspected for loose articles and debris before starting the engine.

What areas are they?

- o (a) Only the area directly behind the engine exhaust

- (b) A distance of 30 meters around the inlet

- (c) Air intakes and exhaust

If choice c is selected set score to 1.

87. What is the most important engine instrument indication to monitor during a start of a turbine engine?

- (a) Exhaust gas temperature.

- (b) Engine oil temperature.
- (c) Oil pressure.

If choice a is selected set score to 1.

88. Routine checks are made to compare the current performance of the engine with its test-cell performance.

Why?

- (a) This trend monitoring is a system of continuous in flight comparison of engine performance parameters with a base line of these same parameters.

- (b) It is strictly a management tool to ensure personnel are doing their job.
- (c) Monitoring is a system of annual requirement to compare engine performance parameters with a base line of these same parameters.

If choice a is selected set score to 1.

89. One procedure that has improved efficiency is the built-in provision for inspecting the inside of the engine without disassembling it.

How is this performed?

- (a) With borescope or with one of its modern counterparts.

- (b) Access ports to visually monitor the engine in service.
- (c) Annual inspection.

If choice a is selected set score to 1.

90. To clean the gas path, washing with pure water is to recover the...

- (a) EGT margin.

- (b) low EPR output.
- (c) gas path through the exhaust.

If choice a is selected set score to 1.

91. The procedures for preserving and depreserving gas turbine engines vary depending upon...

- (a) the length of inactivity, the type of preservative used, and whether or not the engine may be rotated during the inactive period.

- (b) age of the engine, the type of preservative used.
- (c) humidity local conditions.

If choice a is selected set score to 1.

92. Engines which have been removed from aircraft to storage, or uninstalled engines which are being returned for repair or overhaul, should be protected internally and...

- (a) sealed in moisture vapor proof (MVP) envelopes.

- (b) stored in a moisture free container.
- (c) wiped clean of foreign object material.

If choice a is selected set score to 1.

If assessment score is 0% to 100% Feedback