Question block created by wizard

This exam contains 92 questions.

1. Newton's first law states:

- (a) When a body is acted upon by an external force, the rate change of momentum is proportional to the force and takes place in the direction of the force.
- (b) To every action there is an opposite and equal reaction.

- (c) A body will remain at rest or will continue in uniform motion in a straight line unless acted upon by force.

If choice c is selected set score to 1.

2. What is power?

- (a) The amount of energy transferred by a force.
- (b) The cause to accelerate a mass.

- (c) The rate at which work is performed or energy is transmitted.

If choice c is selected set score to 1.

3. The difference in operation between a propeller and a jet engine can be summarized as follows:

- (a) A propeller accelerates a large quantity of air rearwards at a high rate. A jet engine accelerates a small quantity of air rearwards at a low rate.

- (b) A propeller accelerates a large quantity of air rearwards at a low rate. A jet engine accelerates a small quantity of air rearwards at a high rate.

- (c) Propeller is pulling while a jet engine is only compressing air.

If choice b is selected set score to 1.

4. Which engine has a better stall characteristic?

- (a) Both answers are correct.

- (b) Multi spool axial flow engine.

- (c) Single spool axial flow engine.

If choice b is selected set score to 1.

5. When will the net thrust be the greatest?

- (a) When the aircraft is not moving.

- (b) During climb.

- (c) Just after take-off (start).

If choice a is selected set score to 1.

6. To precisely calculate the thrust of a turbine engine....

- (a) air mass flow is important, the mass of fuel is so small it makes no difference.
- (b) fuel mass is most important, air mass is less important.
- (c) both air mass and fuel mass must be taken into the calculation.

If choice c is selected set score to 1.

7. The bypass ratio of a modern turbofan is....

- (a) around 2 : 1.
- (b) around 5 : 1.
- (c) around 8 : 1.

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

If choice b is selected set score to 1.

9. A flat rated engine has a power output that....

- (a) is independent of ambient temperatures.
- (b) is constant until a certain max. ambient temperature.
- (c) decreases when ambient temperature increases.

If choice b is selected set score to 1.

10. What happens to the thrust if the altitude decreases?

- (a) The thrust will increase.
- (b) The thrust will not change.
- (c) The thrust will decrease.

If choice a is selected set score to 1.

11. During flight, the distribution of static pressure in and around the engine is as follows:

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- (a) A: Low pressure, B: Low pressure, C: High pressure
- (b) A: High pressure, B: Low pressure, C: High pressure

- (c) A: Low Pressure, B: High Pressure, C: Low Pressure

If choice c is selected set score to 1.

12. What is the most effective intake shape for supersonic speeds?

- (a) Convergent - divergent duct.

- (b) Straight duct.
- (c) Divergent - convergent duct.

If choice a is selected set score to 1.

13. What shape does a bifurcated intake have?

- (a) Divergent from front to rear.

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

If choice a is selected set score to 1.

14. How is the hot air anti-ice system activated?

- (a) Manually from the flightdeck

- (b) Automatically when ice is detected
- (c) The system is always on and can not be switched off

If choice a is selected set score to 1.

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

- (a) From the aircraft air system.

- (b) From the engine itself.

- (c) From the opposite engine.

If choice b is selected set score to 1.

16. What kind of engines do normally make use of an axial flow compressor?

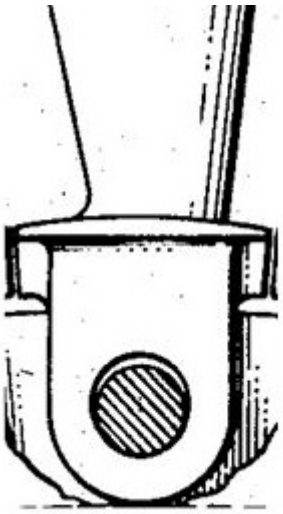
- (a) Turbo jet and turbo fan engines.

- (b) Turbo prop and turbo fan engines.
- (c) Turbo jet and turbo prop engines.

If choice a is selected set score to 1.

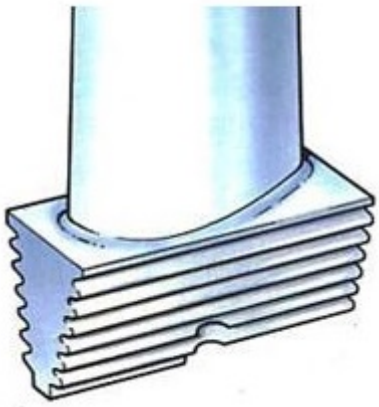
17. Which drawing shows the dove tail fixing type?

o (a)



- (b)

o (c)



If choice b is selected set score to 1.

18. Fan blades can be removed and replaced, however the replaced blade must be of the....

- o (a) same color code.
- • (b) same moment and weight class.
- o (c) production batch.

If choice b is selected set score to 1.

19. What is the overall effect of the compressor?

To increase...

- o (a) pressure and volume and to reduce the temperature.
- o (b) volume and temperature and to decrease pressure.
- • (c) pressure and temperature and to reduce volume.

If choice c is selected set score to 1.

20. What is the correct description of a complete compressor stall?

- o (a) Slow start.
- • (b) Surge.
- o (c) Flame out compressor.

If choice b is selected set score to 1.

21. For maximum efficiency, the angle of the stator blade should give optimum angle of attack throughout the whole RPM range.

How are the vanes actuated? The vanes are ...

- o (a) pneumatically actuated.
- o (b) electrically actuated.
- • (c) hydraulically actuated.

If choice c is selected set score to 1.

22. The term "overall pressure ratio" is defined as the ratio of the...

- • (a) pressure at the front and rear of the compressor of a gas turbine engine.
- o (b) stagnation pressure at the combustion chamber.

- o (c) stagnation pressure due to the rotoring speed of the shafts against the compressor inner wall.

If choice a is selected set score to 1.

23. The compressor outlet delivers compressed air, to a component in front of the combustion section.

How do you call this?

- (a) Diffuser.

- o (b) The exhaust section of the compressor.
- o (c) Nozzle section.

If choice a is selected set score to 1.

24. The primary air through the combustion chamber is divided in....

- (a) 25% for burning mixture and 75% for cooling.

- o (b) 80% for cooling and 20% for mixture burning.
- o (c) 75% for burning mixture and 25% for cooling.

If choice a is selected set score to 1.

25. What is the importance of a low air speed in the diffuser?

- (a) Otherwise it could initiate a flame out.

- o (b) The pressure in the diffuser is decreased.
- o (c) The temperature in the combustion section could be to high.

If choice a is selected set score to 1.

26. What is the result of the twist in the turbine blades, called stagger angle?

- o (a) Relative constant pressure at the tip and higher velocity.
- o (b) Lower gas pressure and higher velocity at the tip.

- (c) Same amount of work along the whole blade.

If choice c is selected set score to 1.

27. They are usually hollow and are cooled by passing compressor bleed air through the blade.They are not moving.

These parts are generally refered to as?

- o (a) turbine blades.

- (b) nozzle guide vanes

o (c) high pressure compressor vanes

If choice b is selected set score to 1.

28. Which phase of turbine blade creep marks the end of its useful life?

- (a) Tertiary.

o (b) Primary.
o (c) Secondary.

If choice a is selected set score to 1.

29. What will happen to the turbine blade when it reaches the tertiary creep stage?

The blade will...

o (a) become weak.
o (b) be under a constant rate of extension.

- (c) eventually break away.

If choice c is selected set score to 1.

30. What exhaust nozzle style is described?

"This duct converts much of the heat and pressure energy in the gases into kinetic energy. The gases thus leave the nozzle at high velocity."

o (a) Bellmouth nozzle.
o (b) Subsonic divergent nozzle.

- (c) Convergent nozzle.

If choice c is selected set score to 1.

31. The nozzle is fitted at the final end of the exhaust duct and for subsonic aircraft it will be convergent in shape.

That is why the velocity of the turbine discharge gases is relatively...

o (a) high but it is decreased before they are discharged.

- (b) low but it is increased before they are discharged.

o (c) cool but it is decreased before they are discharged.

If choice b is selected set score to 1.

32. Blocker door type (cold stream) are mostly used on....

- o (a) supersonic aircraft.
- • (b) high by-pass engines.
- o (c) thrust vectoring nozzles systems.

If choice b is selected set score to 1.

33. Oil that is exposed to bearing cavities is...

- o (a) cooled by bearing rotation.
- o (b) warmed by cooling air flow in the cavity.
- • (c) returned by oil scavenge pumps.

If choice c is selected set score to 1.

34. What is the advantage to use hydraulic bearings in newer engines?

- o (a) Increases the lifetime of the bearing.
- o (b) Reduces vibrations transmitted to the engine cooling system.
- • (c) Reduces vibrations transmitted to the engine.

If choice c is selected set score to 1.

35. The main bearings have the critical function of supporting the main engine rotor.

The number of bearings necessary for proper engine support is, for the most part, determined by...

- o (a) thrust and weight of the engine.
- • (b) length and weight of the engine.
- o (c) life expectance of the engine between overhaul.

If choice b is selected set score to 1.

36. What is the most widely used fuel for aircraft with jet engines?

- o (a) Jet B
- • (b) Jet A / A1
- o (c) JP 8

If choice b is selected set score to 1.

37. What is a difference between Jet A and Jet A-1 fuel?

- (a) Fuel density.
- (b) Sulfur mass.
- (c) Freezing point.

If choice c is selected set score to 1.

38. Static dissipator additive is used to....

- (a) prevent static charging of fuel systems.
- (b) prevent corrosion of metal fuel system components.
- (c) to maintain stability of jet fuel during storage.

If choice a is selected set score to 1.

39. Increasing the flashpoint would reduce the...

- (a) quantity of the fuel.
- (b) weight of the fuel.
- (c) volatile and low-boiling components of the fuel.

If choice c is selected set score to 1.

40. What type of pump is the engine driven fuel pressure pump?

- (a) Vane pump.
- (b) Gerotor pump.
- (c) Gear pump.

If choice c is selected set score to 1.

41. The engine oil tank is a...

- (a) sump below the engine to return the oil by gravity.
- (b) reservoir for the engine oil system.
- (c) unpressurized container.

If choice b is selected set score to 1.

42. What is the function of the Fuel / Oil Heat Exchanger?

- (a) Cooling of oil and heating of fuel.

- o (b) Cooling of fuel.
- o (c) Heating of oil.

If choice a is selected set score to 1.

43. What is the function of the centrifugal breather in the oil tank?

- o (a) To regulate the pressure in the oil tank.
- • (b) Separate the oil from the air.
- o (c) To minimize foaming in the oil tank.

If choice b is selected set score to 1.

44. What is the purpose of the fuel control?

To maintain a correct....

- • (a) combustion air to fuel mixture ratio.
- o (b) temperature in the combustion chamber.
- o (c) burning cycle in the combustion chamber.

If choice a is selected set score to 1.

45. The thrust level request on a FADEC engine is transmitted through a....

- o (a) mechanical cable system.
- • (b) TLA resolver.
- o (c) push/pull control rod system.

If choice b is selected set score to 1.

46. What is the purpose of the fuel flow transmitter?

The purpose of the fuel low transmitter is...

- o (a) to control fuel / air mixture in the combustion chamber.
- o (b) to limit fuel flow to the combustion.
- • (c) to sent a data signal of fuel flow to the indication system.

If choice c is selected set score to 1.

47. The fuel pump main stage mostly is a....

- o (a) vane type.
- o (b) centrifugal type.

- (c) gear type.

If choice c is selected set score to 1.

48. The fuel manifold carries fuel to spray nozzles.

The spray nozzles spray fuel into the...

o (a) diffuser case.
o (b) first stage of the turbine vanes.

- (c) combustion chamber.

If choice c is selected set score to 1.

49. The HP fuel pump receives its flow from the...

o (a) fuel tank booster pumps however only in takeoff.
o (b) fuel nozzles.

- (c) low pressure system (low pressure pump).

If choice c is selected set score to 1.

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

- (a) To remove excess heat and ventilation of the components.

o (b) Cool the engine components and air intake.
o (c) Ventilate the engine bleed air, to the atmosphere.

If choice a is selected set score to 1.

51. What is buffer air used for?

o (a) To pressurize the bearing housings.

- (b) To cool #3 bearing seals.

o (c) To pressurize #3 bearing housing.

If choice b is selected set score to 1.

52. Compressor Stability Control permits compressor stability...

o (a) during cruise power only.
o (b) only during high power settings

- (c) during starting and engine operation.

If choice c is selected set score to 1.

53. Which of the following starters is normally used to start the modern turbofan engine?

- o (a) Starter generator.
- • (b) Air starter.
- o (c) Electric starter.

If choice b is selected set score to 1.

54. An engine fails to accelerate to idle.

This could be a result of....

- o (a) a full open bleed valve.
- o (b) the compression of air is not sufficient.
- • (c) starter cut-off before self sustaining speed.

If choice c is selected set score to 1.

55. When the aircraft is in bad weather condition, the ignition system is switched to....

- o (a) auto.
- • (b) continous.
- o (c) flight.

If choice b is selected set score to 1.

56. What should the ignition system be if the engine is wet motored?

- o (a) Switched in auto mode.
- o (b) Switched on.
- • (c) Deactivated.

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?

- o (a) To prevent a short in the cable.
- o (b) To prevent an open in the ignition cable
- • (c) To dissipate the energy stored in the system

If choice c is selected set score to 1.

58. The EGT Harness connects to a terminal block.

From the terminal block, the EGT signal is sent to a...

- (a) display.

o (b) resistor to decrease the actual temperature otherwise it can be too high.
o (c) voltage generator, to increase the temperature.

If choice a is selected set score to 1.

59. On a modern turbofan engine, the engine pressure ratio (EPR) indicating system measures the pressure ratio across the...

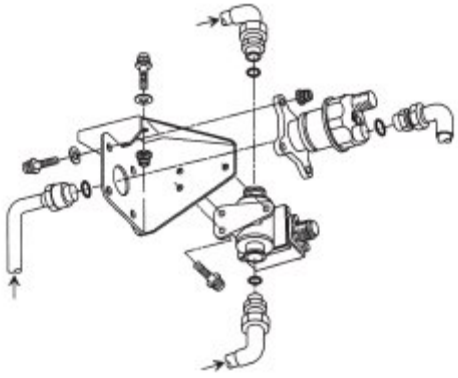
o (a) compressor including low pressure.

- (b) fan.

o (c) only pressure outlet (exhaust).

If choice b 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.
o (b) the FCOC (Fuel Cooled Oil Cooler).

- (c) the gear box pressure.

If choice c 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) AVM (airborn vibration system).

- (b) Engine tachometer system.

o (c) Fuel pump pressure indication system.

If choice b is selected set score to 1.

62. Engine torque is used to indicate...

o (a) the power that is developed by a turbo fan engine.
o (b) lateral twist on the engine mouths.

- (c) the power that is developed by a turbo-propeller engine.

If choice c is selected set score to 1.

63. The greatest advantage of the water injection system is...

- (a) the cooling of the turbine.

o (b) the heating.
o (c) cooling inlet air.

If choice a is selected set score to 1.

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

o (a) get thinner.

- (b) increase.

o (c) decrease.

If choice b is selected set score to 1.

65. Which system is normally used on turbo-jet engines to augment the thrust of the engine for short periods?

- (a) Afterburner.

o (b) In cruise.
o (c) Pre-ignition.

If choice a is selected set score to 1.

66. The propeller is allowed to go to its feather position when the engine is shut down. What type of turbine is this?

o (a) Axial flow turbine.
o (b) Coupled turbine.

- (c) Free turbine.

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...

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

If choice a is selected set score to 1.

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

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

If choice a is selected set score to 1.

70. A short flexible shaft drive system to deliver power to the transmission.

This system is typically installed in a...

- o (a) fighter turbojet aircraft.
- • (b) turbine helicopter drive system.
- o (c) commercial aircraft fan jet drive system.

If choice b is selected set score to 1.

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

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

If choice b is selected set score to 1.

72. Drive shaft and flexible coupling, turbine helicopters make use of a short shaft system to deliver power to a:

- o (a) compressor.
- o (b) turbine.
- • (c) transmission.

If choice c is selected set score to 1.

73. The drive systems are equipped with over running clutches that allow the pilot to perform auto-rotation descent in case of total power loss.

This is true for a...

- • (a) turbo-shaft engine on a helicopter.
- o (b) hydro shaft system.
- o (c) reduction gear system from an axial flow bypass engine.

If choice a is selected set score to 1.

74. 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.

75. Reverse flow in an APU will...

- • (a) cause a protective shutdown.
- o (b) not cause a shutdown.
- o (c) be automatically corrected by the ECU.

If choice a 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.
- • (b) Centrifugal compressor with a reverse flow annular combustion chamber.
- o (c) Axial flow compressor to save space and can combustion chamber.

If choice b is selected set score to 1.

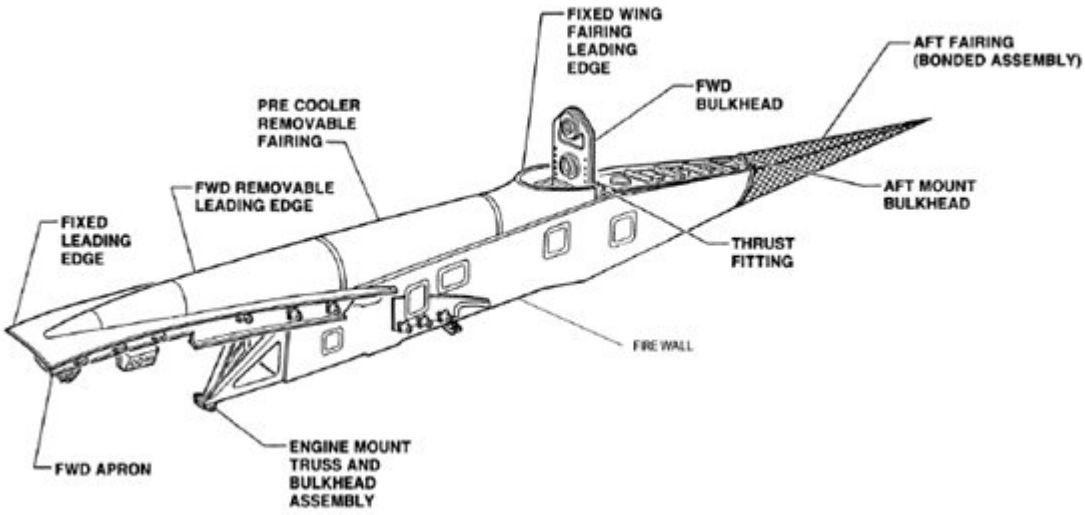
77. The APU control unit (ECU) completely controls...

- (a) start and acceleration.

o (b) automatic selection of air source, no pilot interface needed, including start.
o (c) start and acceleration including automatic selection of air.

If choice a is selected set score to 1.

78. The forward bulkhead is attached to the wing front spar pylon support fitting.



The forward bulkhead fitting transmits...

o (a) thrust and provides for engine to grow in length while in operation.

- (b) vertical, side, and torque loads on the pylons to the wing.

o (c) only vertical load.

If choice b is selected set score to 1.

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

o (a) Core Engine.
o (b) HP fan.

- (c) LP fan.

If choice c is selected set score to 1.

80. Powerplants are often divided into zones by fireproof bulkheads.

Bulkheads are usually made of...

- o (a) harden steel.
- o (b) aluminum alloy.
- • (c) stainless steel, titanium.

If choice c is selected set score to 1.

81. The aft engine mount transfers...

- o (a) thrust loads to the wing
- • (b) torsional, vertical and side loads to the pylon.
- o (c) side loads only however it allows for engine growth.

If choice b is selected set score to 1.

82. A continuous-loop system, which has two wires imbedded in a special ceramic core within an Inconel tube.

What system is this?

- o (a) Fenwall
- o (b) Graviner continuous fire detectors
- • (c) Kidde

If choice c is selected set score to 1.

83. 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.

84. The fire extinguishing system protects those sections of the airplane...

- o (a) where a fire could initiate. Controls and system status indications related to the cabin are located in FWD Cabin Station. All other controls and systems are located in the cockpit.
- • (b) where a fire could initiate. Controls and system status indications are located in the cockpit.
- o (c) selected by each flight crew before departure.

If choice b is selected set score to 1.

85. This system operates on the rate-of-temperature-rise principle.

What system is this?

- o (a) Pressure relief system monitoring.
- o (b) Thermal switch system
- • (c) Thermocouple fire detector system

If choice c is selected set score to 1.

86. When working in the entrance corridor, the engine should....

- o (a) be operated under the self-sustaining speed.
- • (b) not exceed minimum idle.
- o (c) be operated at all engine rpm's.

If choice b is selected set score to 1.

87. What is the maximum power setting the pilot can use in an emergency situation?

- • (a) Maximum continuous thrust.
- o (b) Maximum cruise.
- o (c) Maximum climb.

If choice a is selected set score to 1.

88. Trend monitoring is a system of routine comparison of engine performance parameters with a base line of the same parameters.

How is this accomplished?

- o (a) Via downloading the post flight report from the on-board maintenance system.
- • (b) Graphs or curves are used to show trends in changing conditions.
- o (c) Each Pilots log book entry is compared to the baseline.

If choice b 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?

- o (a) Access ports to visually monitor the engine in service.

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

o (c) Annual inspection.

If choice b is selected set score to 1.

90. Foreign object damage (FOD) comes from many sources.

What are the most common?

- (a) Taxi ways.

o (b) Ice / hail.
o (c) Birds.

If choice a is selected set score to 1.

91. When should the MVP envelope be checked for damages?

If the indicator is colored....

o (a) white.
o (b) blue.

- (c) pink.

If choice c is selected set score to 1.

92. Is it nescessary to protect an aircraft engine for a short period of less than 7 days?

- (a) Yes.

o (b) No.
o (c) Depends on the environmental conditions.

If choice a is selected set score to 1.

If assessment score is 0% to 100% Feedback