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This exam contains 60 questions

1. The principle of conservation of energy states that energy....

Choose the best answer.

a. cannot be destroyed.
b. cannot be created.
c. cannot be created or destroyed.

2. A loaded battery in a plane during cruise flight has....

Choose the best answer.

a. potential energy.
b. kinetic energy.
c. potential and kinetic energy.

3. To what other type of engine can the working cycle of a gas turbine engine best be compared?

a. Four - stroke piston engine.
b. Two - stroke piston engine.
c. Steam driven piston engine.

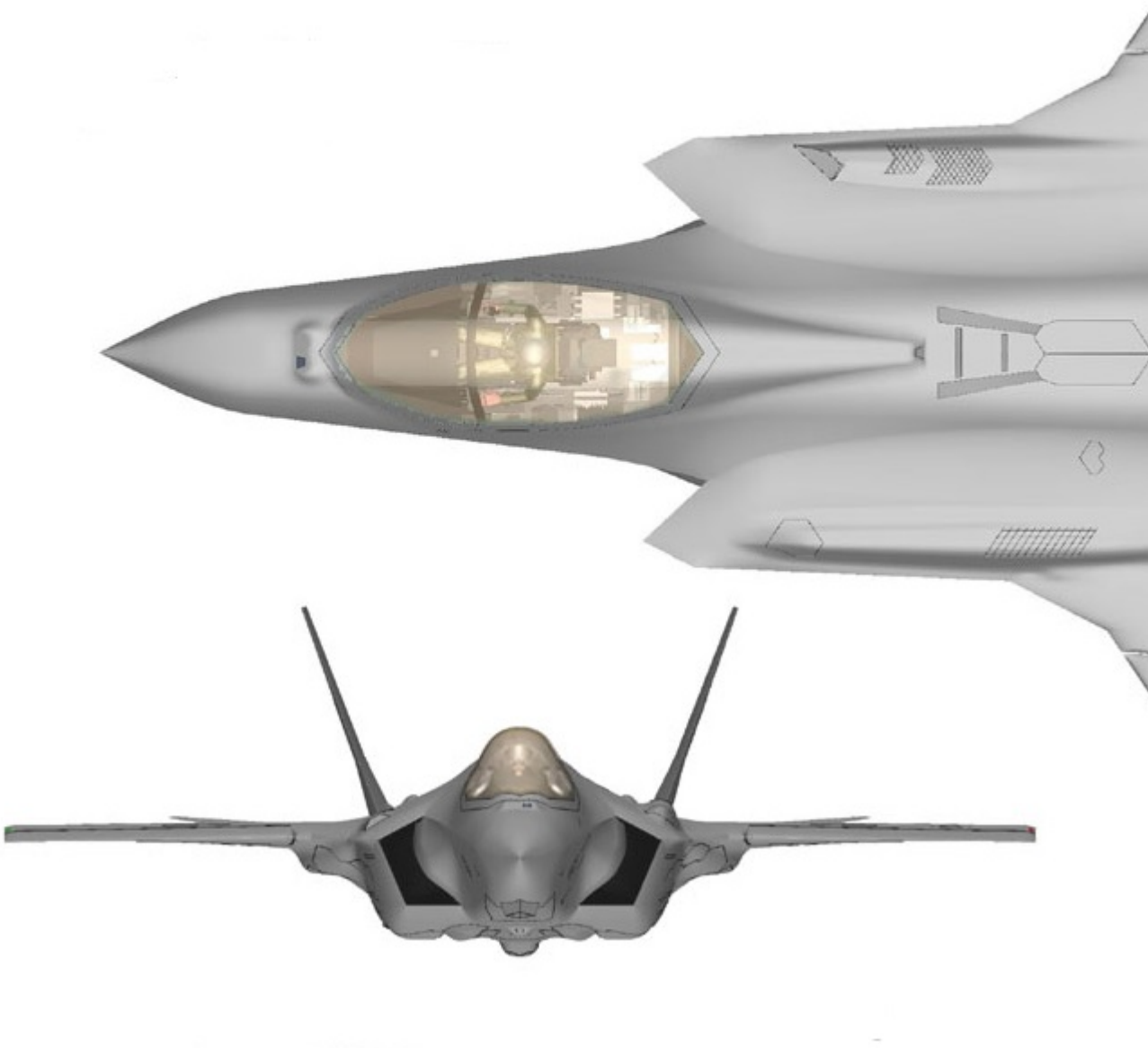
4. Which of the following statements is true about the mass airflow in a turbojet engine?

a. The mass airflow is the same from intake to exhaust.
b. The mass airflow is larger at the intake than at the exhaust.
c. The mass airflow is smaller at the exhaust than at the intake.

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

a. Pressure recovery.
b. Mass airflow.
c. Engine power.

6. What type of intake is used on this aircraft with a single engine?



a. Bellmouth intake.
b. Bifurcated intake.

c. Side intake.

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

a. To increase the efficiency of the intake at low (subsonic) speeds.
b. To restrict the amount of airflow at supersonic speeds.
c. To avoid boundary layer effect in the intake.

8. What is the disadvantage of a hot air anti-icing system?

a. There is a slight loss of power when the system is on
b. The system can not be switched off
c. The system does work when the engine is not running

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

a. Electrical anti-ice
b. Pneumatic anti-ice
c. Hot air anti-ice

10. The impeller consists of a forged disc with radially disposed vanes.

This is....

a. an axial compressor.
b. a centrifugal compressor.
c. an axial turbine.

11. What happens to the air if forced through the axial flow compressor?

a. Pressure and temperature increase while velocity decreases.
b. Pressure, temperature and velocity decrease.
c. Pressure and temperature increase.

12. Fan balancing. If the spinner is replaced by a new one, the balance weights and screws....

a. must always be replaced by new balance weights and screws.
b. can be installed anywhere on the new spinner.
c. must be installed on the same location as on the old spinner.

13. What can be done to reduce the risk of stall or surging of the engine?

a. Use a variable air intake.
b. Adjust the fuel flow to the engine.
c. Use a compressor bleed control system.

14. What is the limiting factor on pressure ratio?

a. The air heating up as it is compressed.
b. The structural strength of the engine.
c. The speed of the compressor.

15. Where is the point of highest pressure?

a. Diffuser
b. Exit of the high pressure compressor.
c. Combustor.

16. Where is the compressor-diffuser located?

a. Between compressor and combustor.
b. Between combustor and turbine.
c. Between the low pressure and high pressure compressor.

17. How does the secondary air enter the combustion chamber?

a. Through holes in the wall of the flame tube.
b. Via injectors in the flame tube.
c. Through slots between the flame tube and fuel nozzles.

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

a. Lower gas pressure and higher velocity at the tip.
b. Same amount of work along the whole blade.
c. Relative constant pressure at the tip and higher velocity.

19. A radial inflow turbine will be used for....

a. Low by-pass engines.
b. high by-pass engines.
c. APU (auxillary power unit).

20. By using fir-tree fixing, the blade will be...

a. free to move slightly at all times to eliminate stresses in the blade root
b. free when the engine is stationary and stiffened in the root when the engine rotates
c. fixed to the disk with no clearances.

21. The initial creep phase where creep occurs rapidly over a relatively short period is called?

a. Primary creep.
b. Dynamic creep.
c. Secondary creep.

22. "It rotates at high speed and is subjected to large rotational stresses of the turbine blades."

What assembly is this?

a. Turbine disc.
b. Compressor disc
c. Idler gear in gear box of the high pressure disc.

23. Where are the exhaust inner cone and support struts located?

a. Exhaust casing.
b. Fan casing.
c. Diffuser.

24. What is the function of a jet pipe?

a. To keep the exhaust gases clear of the aircraft.
b. Increase the speed of exhaust gas airflow to give the engine more thrust.
c. Slow down the exhaust gas airflow to increase the engine thrust.

25. When is an exhaust nozzle said to be choked?

When exhaust gas velocity is ....

a. lower than Mach 1.
b. Mach 1.
c. greater than Mach 1.

26. What are the most widely used fuels for jet engines

a. Jet-A and jet-A1.
b. Jet-A and jet-B.

c. Jet-B and JP4.

27. What are corrosion inhibitors used for in fuel?

a. Suppresses the catalytic effect of some metals.
b. Protects the metals in the fuel system.
c. Protects the fuel from some metals in the fuel system.

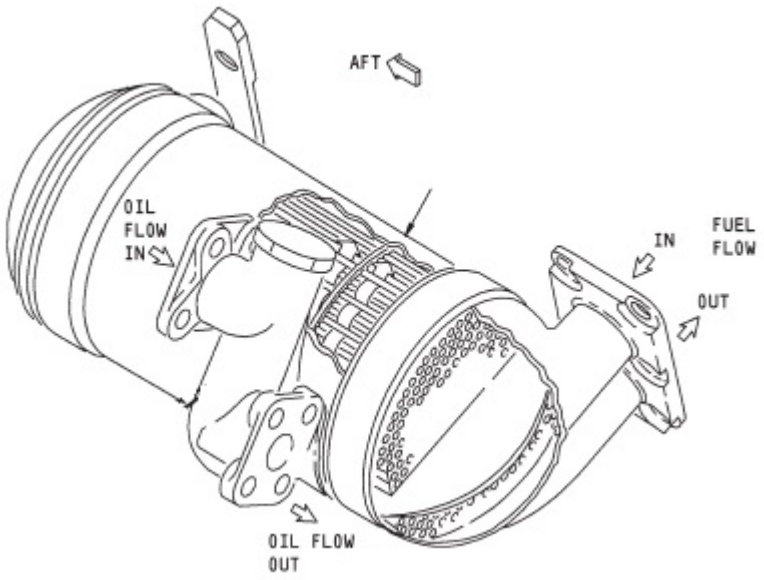
28. Can you use any power tools while working inside a fuel tank?

a. Yes, if they are spark free and the tank has been ventilated..
b. Yes, if the fuel tank has been ventilated and the tool is calibrated.
c. No

29. What type of filters are pleated screens and wafer screens?

a. Non-cleanable screen filters.
b. Scavenge screen filters.
c. Cleanable screen filters.

30. What component is shown in the Figure below?



a. Fuel/Oil heat exchanger
b. Oil tank
c. Hydraulic Reservoir

31. On a modern jet aircraft, power lever input to the EEC is given by....

a. cables or push-pull rods.
b. TLA resolvers.
c. micro switches.

32. A FADEC consists of an electronic control unit, a hydromechanical unit and what other part(s)?

a. Sensors
b. Fuel control unit
c. Throttle

33. The primary control mode of the EEC is....

a. N1.
b. N2.
c. EPR.

34. What are the most used extinguishing agent(s) approved for aircraft?

a. Halon 1211 and Halon 1301.
b. CO_2 (carbon oxide) and water.
c. N (nitrogen).

35. The EEC alternator powers the....

a. fuel pump.
b. EEC and provides N2 signal.
c. aircraft electrical bus.

36. Where are the fuel nozzles located?

a. Aft of the combustion chamber.
b. Middle of the combustion chamber.
c. In front of the combustion chamber.

37. The turbine case cooling system cools...

a. high and low pressure turbine cases.
b. low pressure compressor case only.
c. high pressure turbine case only.

38. What powers the 2.5 bleed valve actuator?

a. Air pressure.
b. Fuel pressure.
c. Electrical power.

39. What are the two subsystems of the engine air system?

a. Bleed air system and compressor control.
b. Accessory cooling and compressor control.
c. Engine compartment cooling and compressor control.

40. What is the function of the compressor control system?

a. Ensure enough air is available for combustion.
b. Supplies the aircraft pneumatic system.
c. Prevent engine surge.

41. Name the type of starters in use today.

a. Electrical starter, starter generator.
b. Air starter, electrical starter.
c. Electrical starter, starter generator, air starter.

42. Which statement is true about idle speed?

a. Idle speed varies with altitude.
b. Idle speed keeps the same in any throttle position.
c. Idle speed is the same under any condition.

43. A modern capacitive ignition exciter generates....

a. 5 kV DC.
b. 10 kV DC.
c. 24 kV DC.

44. What is a risk of wet motoring?

a. The engine could start unexpectedly.
b. Fuel vapour exiting the engine.
c. Bearing damage.

45. Why is the EGT indication so important?

a. The temperature of the exhaust gas must be monitored to prevent damage to exhaust duct.
b. The temperature of the gasflow in the turbine must be monitored to prevent damage to the turbine blades.
c. The temperature in the combustor must be correct to ensure good engine performance.

46. There are primary and secondary engine instruments. Which one belongs to the primary engine instruments?

a. Fuel pressure indicator.
b. N2 Speed of the high pressure shaft.
c. Oil quantity indicator.

47. What is generally used to measure N2 speed?

a. Tachogenerator.
b. A gear box.
c. Mechanical speeddrive.

48. How do you call a helicopter turbine engine with an aerodynamically coupled output shaft?

a. A free power turbine engine.
b. A twin spool fan engine.
c. A triple spool fan engine.

49. When is a turboprop in overspeed condition?

a. When the actual engine speed is higher than the desired engine speed.
b. When the propeller speed is higher than the free turbine speed.
c. When the desired engine speed is higher than the actual engine speed.

50. The turboshaft is very similar to what other engine?

a. Turboprop
b. Turbofan
c. Turbojet

51. When is a gas turbine engine called a turboshaft?

When power ....

a. is delivered via a shaft to the propellor.

b. to the propellor is delivered via a power turbine.
c. is delivered via a shaft to something other than a propellor.

52. What is the prefered method to stop the APU?

a. Injected over-speed and over-temp.
b. Loss of RPM sensing.
c. ECU failure.

53. The APU normally provides...

a. thrust, electric and pneumatic power.
b. electric and pneumatic power.
c. hydraulic, electric and pneumatic power.

54. What is another name for teleflex cable?

a. Push-pull cable
b. Data cable
c. Multi-strand cable

55. In which area would flexible fluidlines be used?

a. Areas where long runs are possible.
b. High vibration area
c. High temperature area

56. What is a negative point of a multi-strand cable system?

a. Break easily.
b. Frequent maintenance.
c. Requires lots of force to move.

57. What is the advantage of a systron-donner fire detection system?

a. A faulty detector will immediately trigger a warning.
b. The system continues to work even if a sensor has broken.
c. The system can work without electricity.

58. What type of gas is used in the systron-donner fire detector?

a. Helium

b. Nitrogen
c. Oxygen

59. Modern turbine engines are borescoped through...

a. borescope ports.
b. front and back of the engine.
c. bleed valves and bleed duct openings.

60. Damage on a fanblade can...

a. be repaired if the damage is within certain limits.
b. always be repaired.
c. never be repaired.