

Question block created by wizard

This exam contains 60 questions

1. Newtons second law applies to a mass. Which mass in a gas turbine engine does it apply to?
 - a. Mass of the air.
 - b. Mass of the fuel.
 - c. Mass of the fuel and air.

2. What causes a mass to accelerate?
 - a. Energy
 - b. Force
 - c. Power

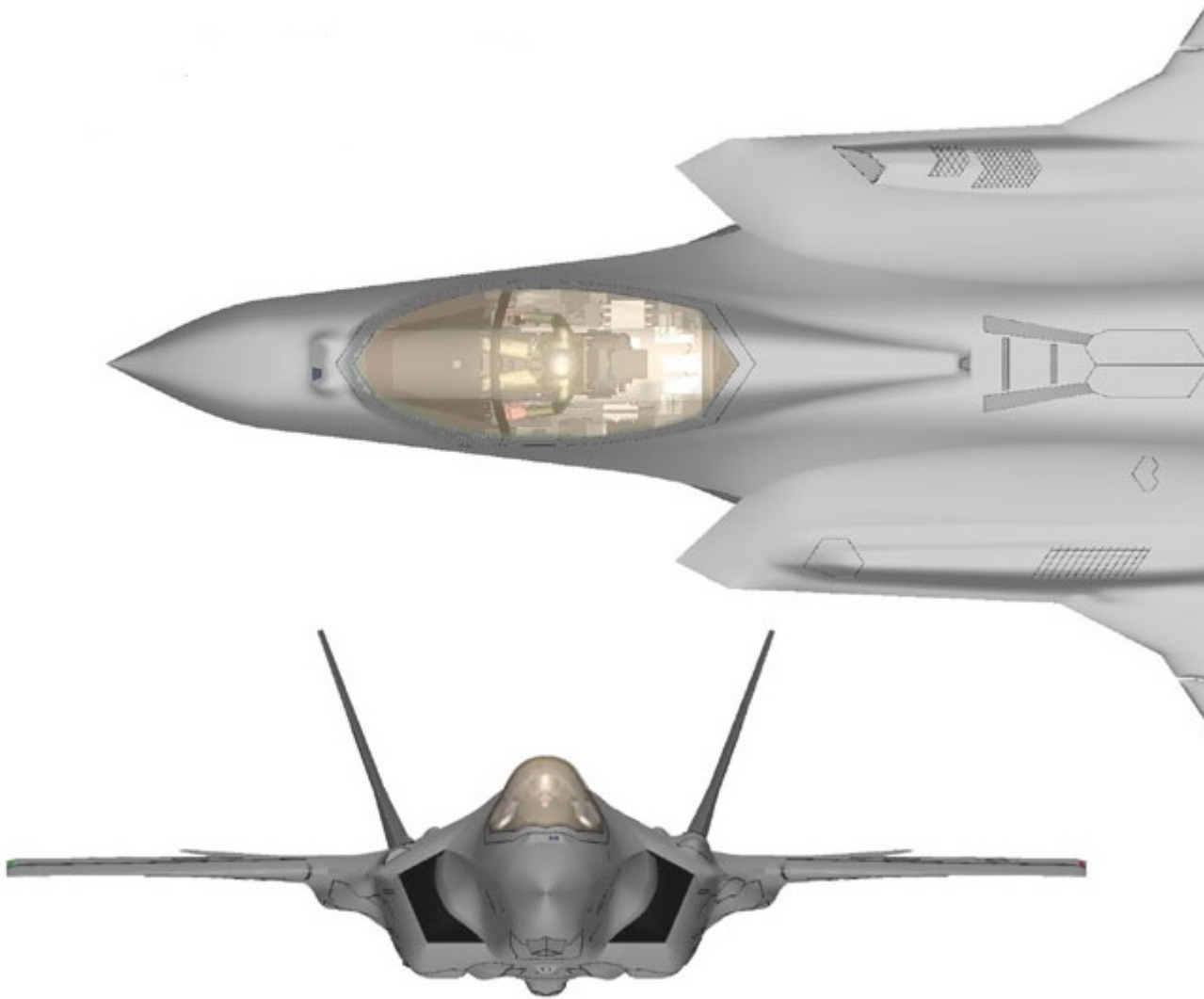
3. How is a gas turbine engine started?
 - a. By spinning the compressor to establish a rearward flow of air, then adding and igniting fuel.
 - b. By adding and igniting fuel, then spinning the compressor to establish a rearward flow of air.
 - c. By adding and igniting fuel, the engine is self-starting.

4. 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.

5. To ensure a steady continuous airflow through a duct, the mass air flow must...
 - a. be the same at any cross section.
 - b. increase as the cross section decrease.
 - c. decrease as the airflow passes through the duct.

6. What is the most effective intake shape for supersonic speeds?
 - a. Convergent - divergent duct.
 - b. Divergent - convergent duct.
 - c. Straight duct.

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



- a. Bifurcated intake.
- b. Side intake.

- c. Bellmouth intake.
- 8.** How is the hot air anti-ice system activated?
- a. The system is always on and can not be switched off
 - b. Manually from the flightdeck
 - c. Automatically when ice is detected
- 9.** What is the disadvantage of a hot air anti-icing system?
- a. The system does work when the engine is not running
 - b. The system can not be switched off
 - c. There is a slight loss of power when the system is on
- 10.** What is used on the fan case for fan blade containment?
- a. A steel shroud.
 - b. Kevlar cloth
 - c. Honey comb
- 11.** Modern fan rotor blades are made of...
- a. steel.
 - b. aluminum.
 - c. titanium.
- 12.** What is a common location to install trim balance bolts?
- a. Fan shaft.
 - b. Fan spinner.
 - c. Fan blades.
- 13.** When is a compressor considered to be in surge condition?
- a. When the whole compressor has stalled.
 - b. When at least one compressor stage has stalled.
 - c. When at least one blade has stalled.
- 14.** How are very high compressor pressure ratios obtained in axial flow engines?
- a. By using variable stator vanes.
 - b. By using multi spools.

- c. By using variable bleed valves.

15. Where is the point of highest pressure?

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

16. Why must there be a region of low axial velocity of the air inside the combustion chamber?

- a. To ensure the flame remains alight.
- b. To allow the combustion chamber to be cooled sufficiently.
- c. To ensure the burned gasses do not get too hot.

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

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

19. The nozzle area in an impuls type turbine is....

- a. constant flow.
- b. convergent.
- c. divergent.

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

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

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

- a. Primary.
- b. Tertiary.

c. Secondary.

22. Over a period of operating time the turbine blades slowly grow in length. This phenomenon is known as...

- a. case growth.
- b. case restriction.
- c. creep.

23. What shape does a jet pipe have?

- a. Divergent
- b. Convergent
- c. Parallel

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

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

25. What is the meaning of a "choked nozzle"?

The gas velocity is...

- a. at its maximum (maximum thrust).
- b. below mach speed and speed increase is possible.
- c. at mach speed and no speed increase is possible.

26. What is a clear indication of an imperfect combustion?

- a. Carbon deposits.
- b. Decrease in engine power.
- c. Increase in fuel consumption.

27. Why are fuel additives used?

- a. To improve the properties of the fuel.
- b. To improve the performance of the engine.
- c. To make the fuel cheaper.

28. Is the use of radio equipment allowed during refueling or defueling?

- a. Yes, always.
- b. Only during refueling.
- c. No, never.

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

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

30. How is engine oil usually cooled?

- a. By a fuel/oil cooler.
- b. By bleed air.
- c. By ram air.

31. The fuel control is driven by....

- a. the engine gear box.
- b. the fan.
- c. a hydraulic motor.

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

- a. N (nitrogen).
- b. Halon 1211 and Halon 1301.
- c. CO₂ (carbon oxide) and water.

33. What is controlling the fuel flow inside the hydromechanical unit?

- a. Servo valve indicator.
- b. Fuel metering unit.
- c. Fuel pump assembly.

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

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

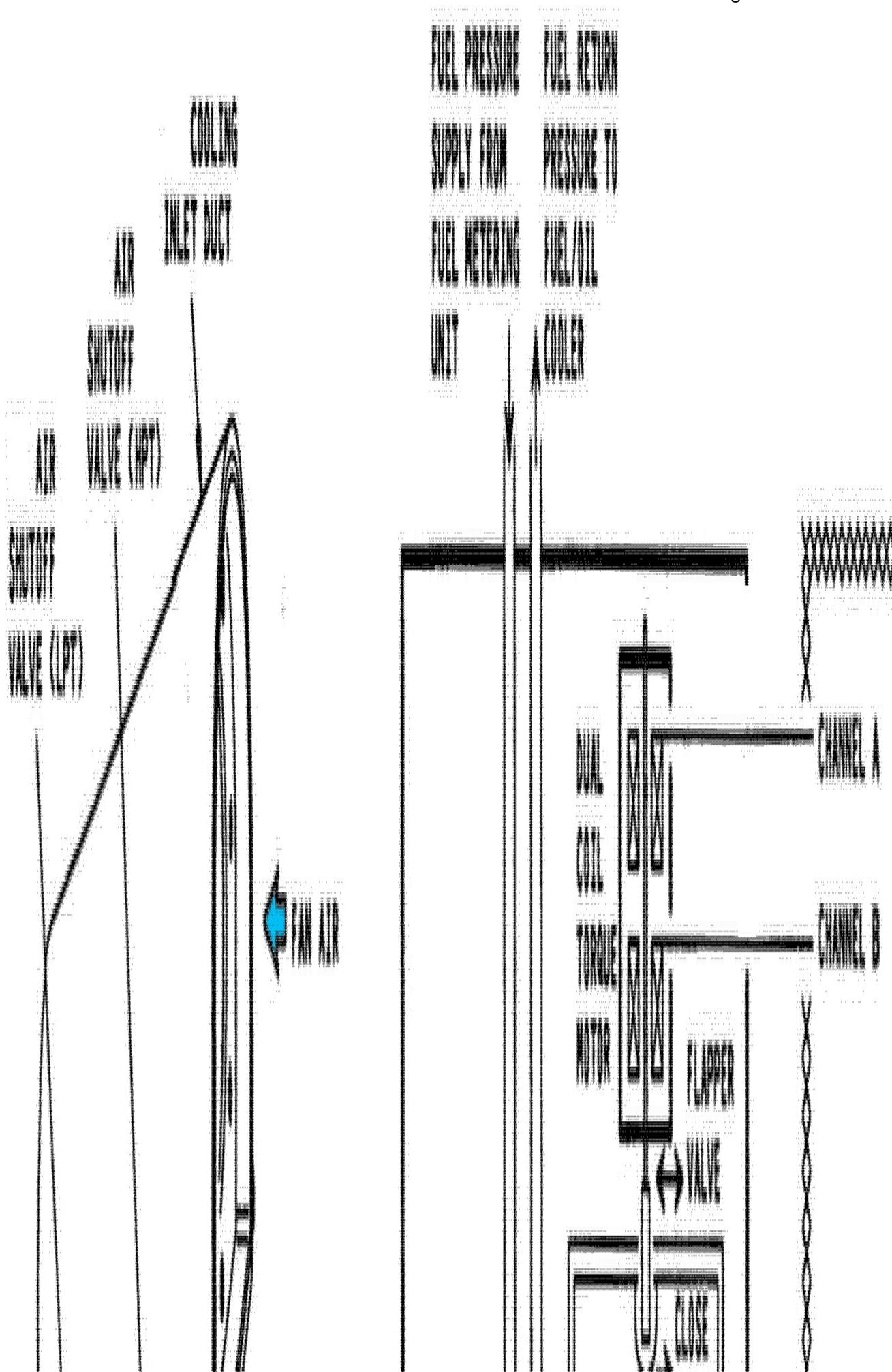
35. The fuel pump is driven by....

- a. the fan gearbox.
- b. the main gearbox.
- c. a hydraulic motor.

36. The EEC alternator powers the....

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

37. Which cooling system is shown in the Figure below?



- a. Turbine case cooling
- b. Accessory cooling
- c. Nacelle zone ventilation

38. What is the fail-safe position of the 2.5 bleed valve, during engine start?

- a. Half open.
- b. Fully open.
- c. Fully closed.

39. What is the benefit of accessory cooling?

- a. Improved intake efficiency.
- b. Improved engine efficiency.
- c. Improved engine response time (faster acceleration).

40. Generally spoken, compressor control is done to improve....

- a. starting and surge protection.
- b. efficiency of the LP compressor.
- c. compression ratios.

41. Which statement is true about idle speed?

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

42. The starter will turn the engine until it reaches...

- a. idle speed.
- b. a speed slightly higher than what is needed to allow the engine to accelerate on its own.
- c. a speed slightly lower than what is needed to allow the engine to accelerate on its own.

43. The ignition system fitted to jet engines is...

- a. always a dual system.
- b. always a single system.
- c. a low energy system.

44. What is a starter duty cycle?

- a. The amount of time it can run and the amount of time it must be off to cool down.
- b. The total life of the starter.
- c. The amount of time the starter can run continuously.

45. Which part of the engine is subjected to the highest thermal loads?

- a. Turbines
- b. Combustor
- c. Compressor

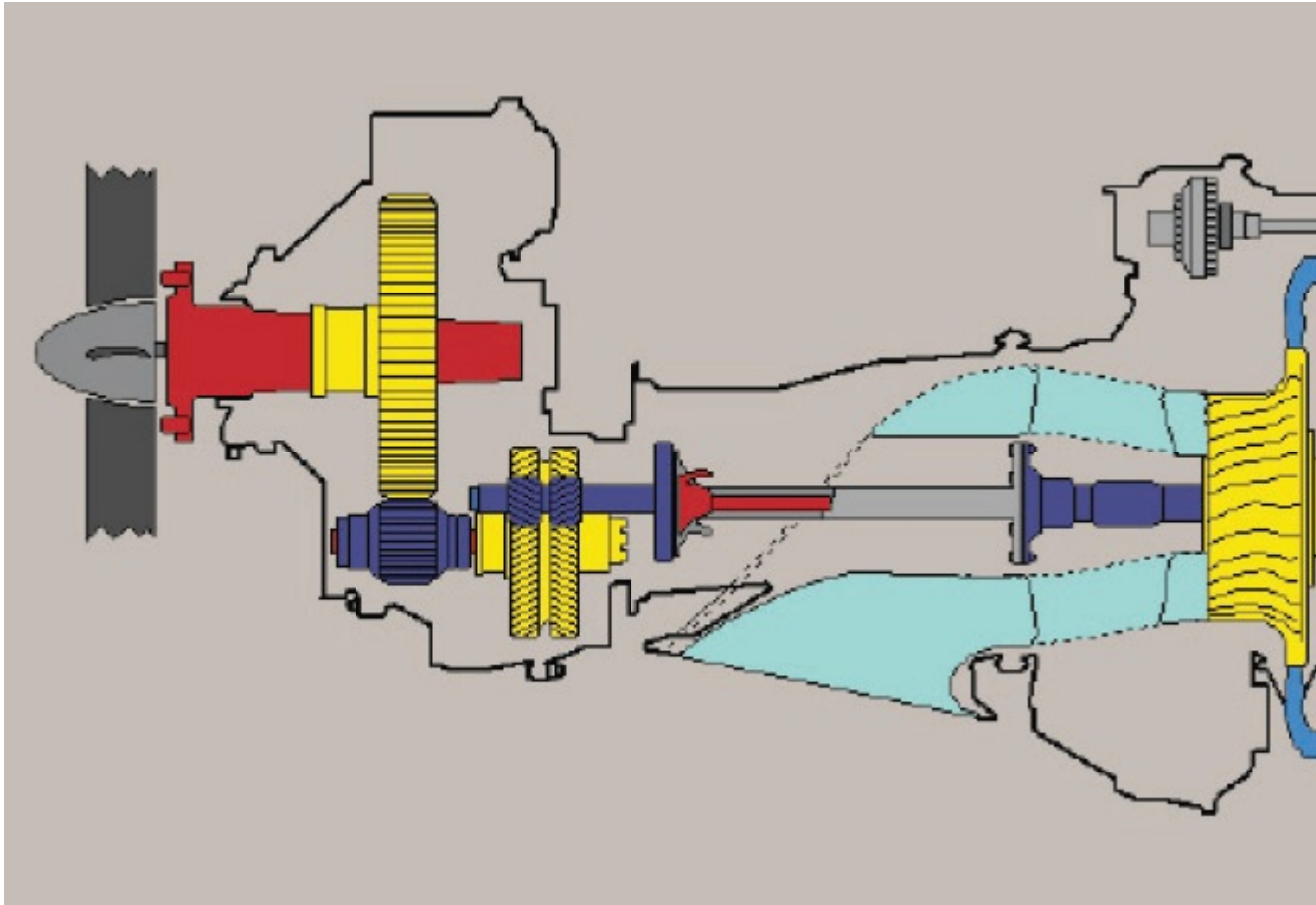
46. There are primary and secondary engine instruments. Which one belongs to the primary engine instruments?

- a. Fuel pressure indicator.
- b. Breather pressure indicator.
- c. EGT Exhaust gas temperature.

47. Torque is used on what type of engines?

- a. Turbojets and turboshaft.
- b. Turboprop and turboshaft.
- c. APU and turboprop.

48. What type of engine is shown?



- a. Single shaft turbo prop
- b. Free power turbine turbo prop
- c. Geared turbo fan

49. What are the engine controls and propeller controls on a turbo prop?

They are...

- a. connected to each other and operate independently.
- b. not connected together and operate independently.
- c. connected to each other and operate in coordination.

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

When power

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

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

- a. Turboprop
- b. Turbojet
- c. Turbofan

52. The APU normally provides...

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

53. What is the preferred method to stop the APU?

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

54. In which area would flexible fluidlines be used?

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

55. What is the largest source of external noise on a modern turbofan engine?

- a. Thrust reverser
- b. Exhaust
- c. Core engine

56. What is another name for teleflex cable?

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

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

- a. Helium
- b. Oxygen
- c. Nitrogen

- 58.** What is the main difference between a fire detector and an overheat detector?
- Fire detectors are only used on engines, overheat detectors are used on wheel brakes.
 - Fire detectors detect fire, overheat detectors detect bleed air leaks.
 - Fire detectors are continuous loops, overheat detectors are switches.
- 59.** Why must an engine be idled after a high power run?
- To burn the excessive fuel inside the engine.
 - To let the pressures stabilize.
 - To let the temperatures stabilize.
- 60.** How is a sharp-bottomed depression with rough outer edges called?
- A dent.
 - A scratch.
 - A nick.