# 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?

- o (a) Mass of the air.
- o (b) Mass of the fuel.
- • (c) Mass of the fuel and air.

*If choice c is selected set score to 1.*

**2.** What causes a mass to accelerate?

- o (a) Energy
- • (b) Force
- o (c) Power

*If choice b is selected set score to 1.*

**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.
- o (b) By adding and igniting fuel, then spinning the compressor to establish a rearward flow of air.
- o (c) By adding and igniting fuel, the engine is self-starting.

*If choice a is selected set score to 1.*

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

- • (a) Four - stroke piston engine.
- o (b) Two - stroke piston engine.
- o (c) Steam driven piston engine.

*If choice a is selected set score to 1.*

**5.** To ensure a steady continuous airflow through a duct, the mass air flow must...

- • (a) be the same at any cross section.
- o (b) increase as the cross section decrease.
- o (c) decrease as the airflow passes through the duct.

*If choice a is selected set score to 1.*

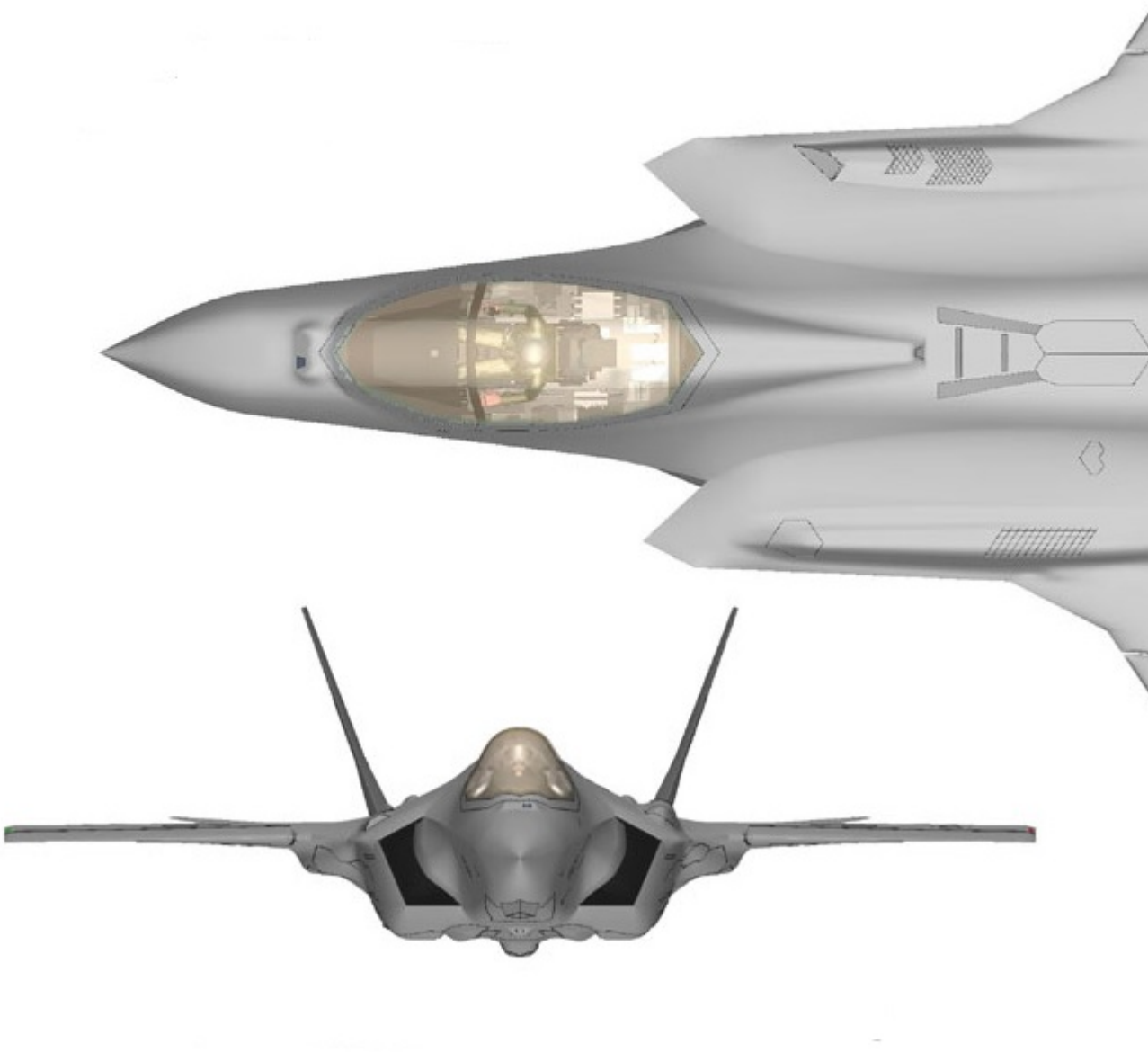
**6.** What is the most effective intake shape for supersonic speeds?

- (a) Convergent - divergent duct.

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

*If choice a is selected set score to 1.*

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



- (a) Bifurcated intake.

- (b) Side intake.
- (c) Bellmouth intake.

*If choice a is selected set score to 1.*

**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

*If choice b is selected set score to 1.*

**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

*If choice c is selected set score to 1.*

**10.** What is used on the fan case for fan blade containment?

- (a) A steel shroud.

- (b) Kevlar cloth

- (c) Honey comb

*If choice b is selected set score to 1.*

**11.** Modern fan rotor blades are made of...

- (a) steel.
- (b) aluminum.

- (c) titanium.

*If choice c is selected set score to 1.*

**12.** What is a common location to install trim balance bolts?

- (a) Fan shaft.

- (b) Fan spinner.

- (c) Fan blades.

*If choice b is selected set score to 1.*

**13.** When is a compressor considered to be in surge condition?

- (a) When the whole compressor has stalled.

o (b) When at least one compressor stage has stalled.
o (c) When at least one blade has stalled.

*If choice a is selected set score to 1.*

**14.** How are very high compressor pressure ratios obtained in axial flow engines?

o (a) By using variable stator vanes.

- (b) By using multi spools.

o (c) By using variable bleed valves.

*If choice b is selected set score to 1.*

**15.** Where is the point of highest pressure?

o (a) Combustor.

- (b) Diffuser

o (c) Exit of the high pressure compressor.

*If choice b is selected set score to 1.*

**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.

o (b) To allow the combustion chamber to be cooled sufficiently.
o (c) To ensure the burned gasses do not get too hot.

*If choice a is selected set score to 1.*

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

- (a) Through holes in the wall of the flame tube.

o (b) Via injectors in the flame tube.
o (c) Through slots between the flame tube and fuel nozzles.

*If choice a is selected set score to 1.*

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

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

*If choice b is selected set score to 1.*

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

- o (a) constant flow.
- • (b) convergent.
- o (c) divergent.

*If choice b is selected set score to 1.*

**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
- o (b) fixed to the disk with no clearances.
- o (c) free to move slightly at all times to eliminate stresses in the blade root

*If choice a is selected set score to 1.*

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

- o (a) Primary.
- • (b) Tertiary.
- o (c) Secondary.

*If choice b is selected set score to 1.*

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

- o (a) case growth.
- o (b) case restriction.
- • (c) creep.

*If choice c is selected set score to 1.*

**23.** What shape does a jet pipe have?

- o (a) Divergent
- o (b) Convergent
- • (c) Parallel

*If choice c is selected set score to 1.*

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

- o (a) Diffuser.
- o (b) Fan casing.
- • (c) Exhaust casing.

*If choice c is selected set score to 1.*

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

The gas velocity is...

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

*If choice c is selected set score to 1.*

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

- • (a) Carbon deposits.
- o (b) Decrease in engine power.
- o (c) Increase in fuel consumption.

*If choice a is selected set score to 1.*

**27.** Why are fuel additives used?

- • (a) To improve the properties of the fuel.
- o (b) To improve the performance of the engine.
- o (c) To make the fuel cheaper.

*If choice a is selected set score to 1.*

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

- o (a) Yes, always.
- o (b) Only during refueling.

- (c) No, never.

*If choice c is selected set score to 1.*

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

- (a) Cleanable screen filters.

o (b) Non-cleanable screen filters.
o (c) Scavenge screen filters.

*If choice a is selected set score to 1.*

**30.** How is engine oil usually cooled?

- (a) By a fuel/oil cooler.

o (b) By bleed air.
o (c) By ram air.

*If choice a is selected set score to 1.*

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

- (a) the engine gear box.

o (b) the fan.
o (c) a hydraulic motor.

*If choice a is selected set score to 1.*

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

o (a) N (nitrogen).

- (b) Halon 1211 and Halon 1301.

o (c) $CO_2$ (carbon oxide) and water.

*If choice b is selected set score to 1.*

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

o (a) Servo valve indicator.

- (b) Fuel metering unit.

o (c) Fuel pump assembly.

*If choice b is selected set score to 1.*

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

- o (a) N1.
- o (b) N2.
- • (c) EPR.

*If choice c is selected set score to 1.*

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

- o (a) the fan gearbox.
- • (b) the main gearbox.
- o (c) a hydraulic motor.

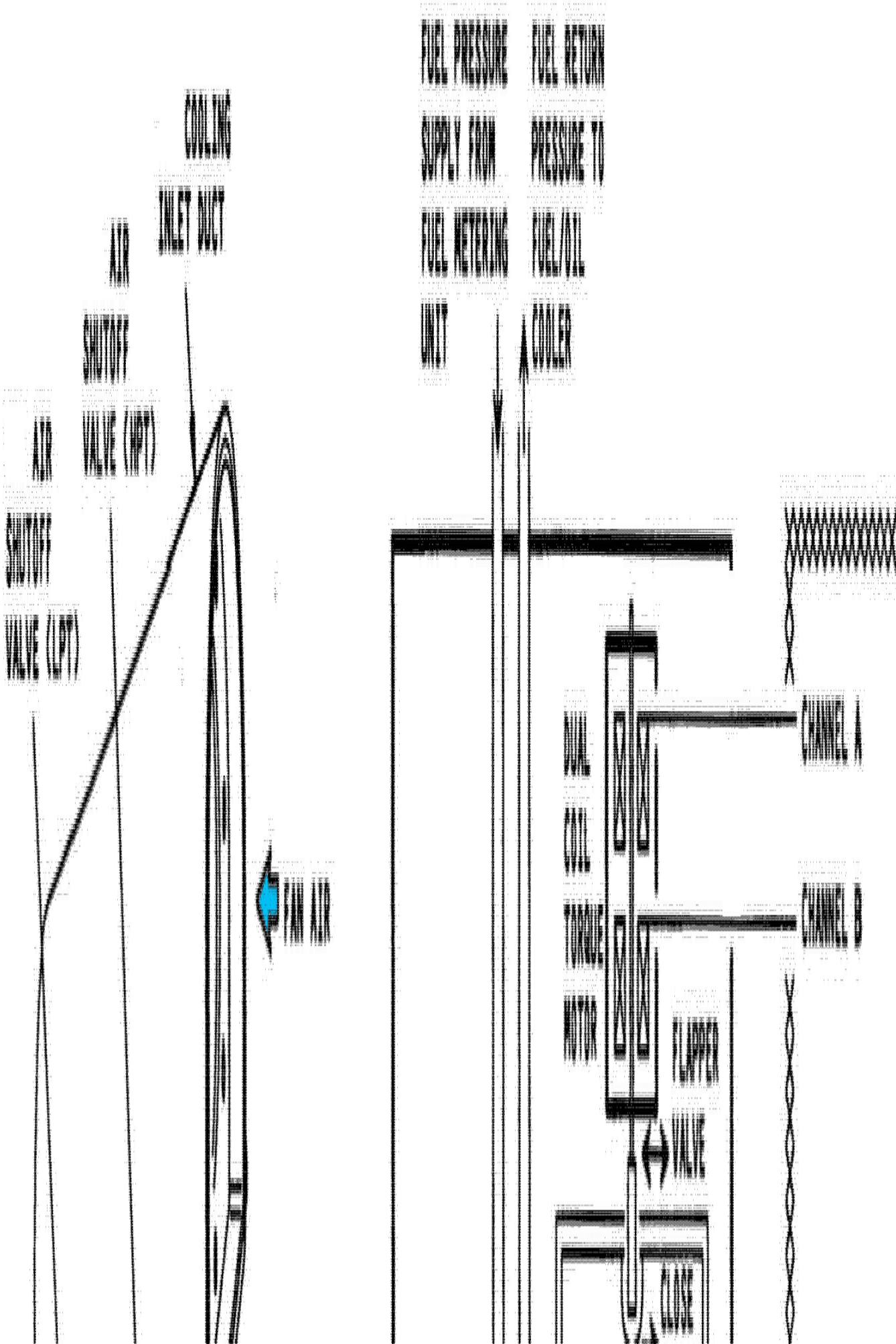
*If choice b is selected set score to 1.*

**36.** The EEC alternator powers the....

- o (a) fuel pump.
- • (b) EEC and provides N2 signal.
- o (c) aircraft electrical bus.

*If choice b is selected set score to 1.*

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


FUEL PRESSURE
SUPPLY FROM
FUEL RETURN
UNIT
FUEL RETURN
PRESSURE TO
FUEL/OIL
COOLER
COOLING
INLET WAIT
AIR
SHUTOFF
VALVE (UPT)
AIR
SHUTOFF
VALVE (LPT)
FAN AIR
CHANNEL A
CHANNEL B
FLAPPER
VALVE
CLOSE

- (a) Turbine case cooling

o (b) Accessory cooling
o (c) Nacelle zone ventilation

*If choice a is selected set score to 1.*

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

o (a) Half open.

- (b) Fully open.

o (c) Fully closed.

*If choice b is selected set score to 1.*

**39.** What is the benefit of accessory cooling?

o (a) Improved intake efficiency.

- (b) Improved engine efficiency.

o (c) Improved engine response time (faster acceleration).

*If choice b is selected set score to 1.*

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

- (a) starting and surge protection.

o (b) efficiency of the LP compressor.
o (c) compression ratios.

*If choice a is selected set score to 1.*

**41.** Which statement is true about idle speed?

o (a) Idle speed is the same under any condition.

- (b) Idle speed varies with altitude.

o (c) Idle speed keeps the same in any throttle position.

*If choice b is selected set score to 1.*

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

o (a) idle speed.

- (b) a speed slightly higher than what is needed to allow the engine to accelerate on its own.

o (c) a speed slightly lower than what is needed to allow the engine to accelerate on its own.

*If choice b is selected set score to 1.*

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

- (a) always a dual system.

o (b) always a single system.
o (c) a low energy system.

*If choice a is selected set score to 1.*

**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.

o (b) The total life of the starter.
o (c) The amount of time the starter can run continuously.

*If choice a is selected set score to 1.*

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

- (a) Turbines

o (b) Combustor
o (c) Compressor

*If choice a is selected set score to 1.*

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

o (a) Fuel pressure indicator.
o (b) Breather pressure indicator.

- (c) EGT Exhaust gas temperature.

*If choice c is selected set score to 1.*

**47.** Torque is used on what type of engines?

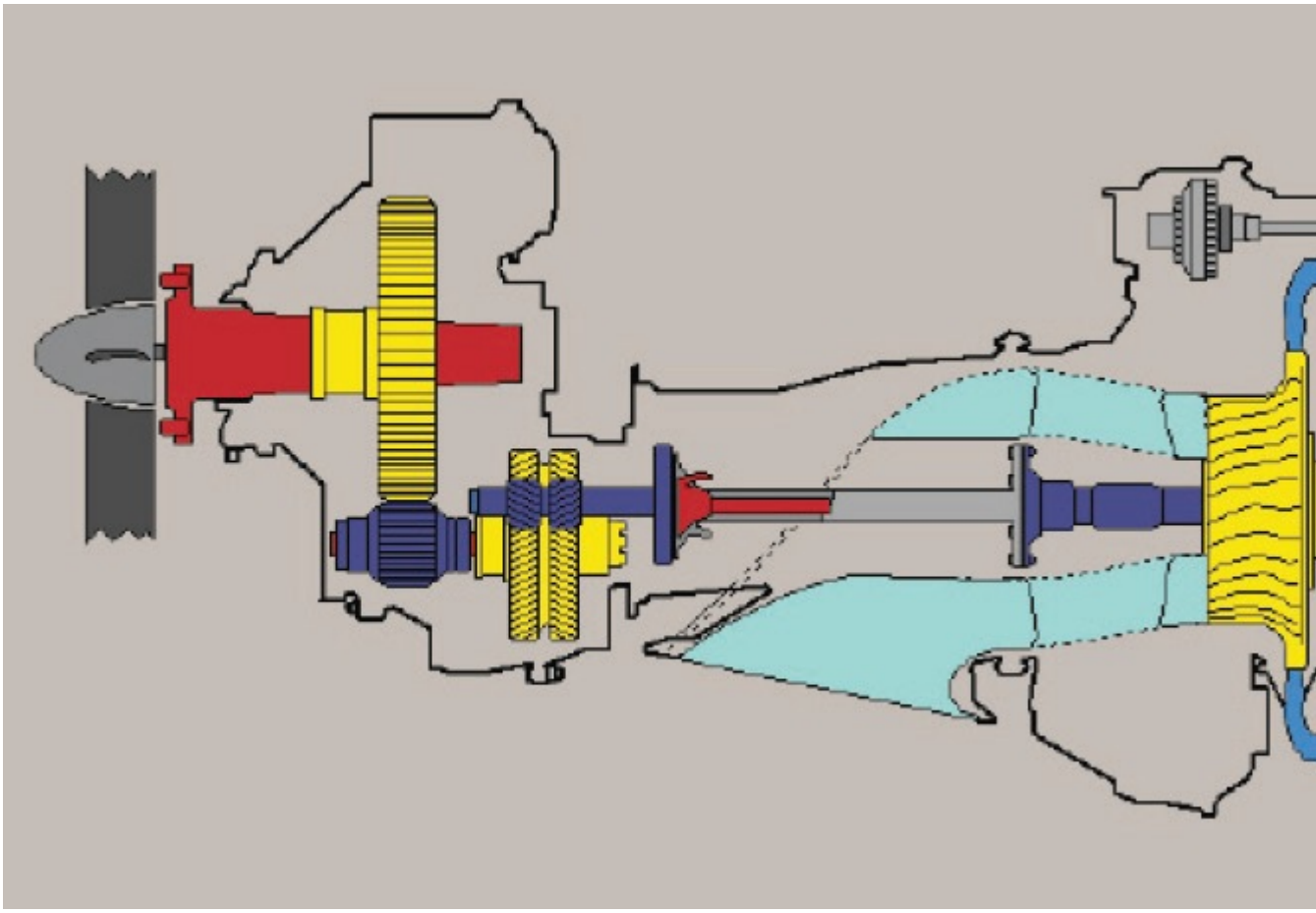
o (a) Turbojets and turboshaft.

- (b) Turboprop and turboshaft.

o (c) APU and turboprop.

*If choice b is selected set score to 1.*

**48.** What type of engine is shown?



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

*If choice b is selected set score to 1.*

**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.

*If choice c is selected set score to 1.*

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

When power ....

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

*If choice b is selected set score to 1.*

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

- • (a) Turboprop
- o (b) Turbojet
- o (c) Turbofan

*If choice a is selected set score to 1.*

**52.** The APU normally provides...

- o (a) hydraulic, electric and pneumatic power.
- o (b) thrust, electric and pneumatic power.
- • (c) electric and pneumatic power.

*If choice c is selected set score to 1.*

**53.** What is the prefered method to stop the APU?

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

*If choice b is selected set score to 1.*

**54.** In which area would flexible fluidlines be used?

- o (a) Areas where long runs are possible.
- o (b) High temperature area
- • (c) High vibration area

*If choice c is selected set score to 1.*

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

- o (a) Thrust reverser
- • (b) Exhaust
- o (c) Core engine

*If choice b is selected set score to 1.*

**56.** What is another name for teleflex cable?

- o (a) Data cable
- o (b) Multi-strand cable
- • (c) Push-pull cable

*If choice c is selected set score to 1.*

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

- • (a) Helium
- o (b) Oxygen
- o (c) Nitrogen

*If choice a is selected set score to 1.*

**58.** What is the main difference between a fire detector and an overheat detector?

- o (a) Fire detectors are only used on engines, overheat detectors are used on wheel brakes.
- • (b) Fire detectors detect fire, overheat detectors detect bleed air leaks.
- o (c) Fire detectors are continuous loops, overheat detectors are switches.

*If choice b is selected set score to 1.*

**59.** Why must an engine be idled after a high power run?

- o (a) To burn the excessive fuel inside the engine.
- o (b) To let the pressures stabilize.
- • (c) To let the temperatures stabilize.

*If choice c is selected set score to 1.*

**60.** How is a sharp-bottomed depression with rough outer edges called?

- o (a) A dent.

- (b) A scratch.

- (c) A nick.

*If choice c is selected set score to 1.*

***If assessment score is 75% to 100% Pass***
***If assessment score is 0% to 74% Fail***