

يتكون هذا الاختبار من (100) سؤال موضوعي من نوع الاختيار من متعدد، الإجابة عنها إجبارية. ظلل بقلم الرصاص بشكل غامق الدائرة التي تشير إلى الإجابة الصحيحة في المكان المخصص لذلك في نموذج الإجابة المرفق.

نظم وقود المحرك

- 1. The fuel systems of aircraft certificated in the standard classification must include which of the following?**
 - a- An engine-driven fuel pump and at least one auxiliary pump per engine.
 - b- A positive means of shutting off the fuel to all engines.
 - c- A reserve supply of fuel, available to the engine only after selection by the flight crew, sufficient to operate the engines at least 30 minutes at METO power.
 - d- An acceptable method for indicating the rate of fuel consumption for each engine.
- 2. The Federal Aviation Regulations require the fuel flow rate for gravity systems (main and reserve) to be:**
 - a- 100 percent of the takeoff fuel consumption of the engine.
 - b- 125 percent of the takeoff fuel consumption of the engine.
 - c- 125 percent of the maximum, except takeoff, fuel consumption of the engine.
 - d- 150 percent of the takeoff fuel consumption of the engine.
- 3. Fuel lines are kept away from sources of heat, and sharp bends and steep rises are avoided to reduce the possibility of**

a- Liquid lock.	b- Vapor lock.
c- Air lock.	d- Positive lock.
- 4. The fuel pump relief valve directs excess fuel to the:**
 - a- Inlet side of the fuel pump.
 - b- Inlet side of the fuel strainer.
 - c- Fuel tank return line.
 - d- Fuel tank drain line.
- 5. What is the purpose of an engine-driven fuel pump bypass valve?**
 - a- To divert the excess fuel back to the main tank.
 - b- To prevent a damaged or inoperative pump from blocking the fuel flow of another pump in series with it.
 - c- To prevent excessive fuel pressure at the fuel inlet of the carburetor.
 - d- To divert the excess fuel from the pressure side of the pump to the inlet side of the pump.
- 6. A fuel strainer or filter must be located between the:**
 - a- Boost pump and tank outlet.
 - b- Carburetor fuel chamber and throttle body.
 - c- Tank outlet and the fuel metering device.
 - d- Boost pump and engine-driven fuel pump.
- 7. When air passes through the venturi of a carburetor, what three changes occur?**
 - a- Velocity increases, temperature increases, and pressure decreases.
 - b- Velocity decreases, temperature decreases, and pressure decreases.
 - c- Velocity decreases, temperature increases, and pressure increases.
 - d- Velocity increases, temperature decreases, and pressure decreases.
- 8. A mixture ratio of 11:1 normally refers to:**

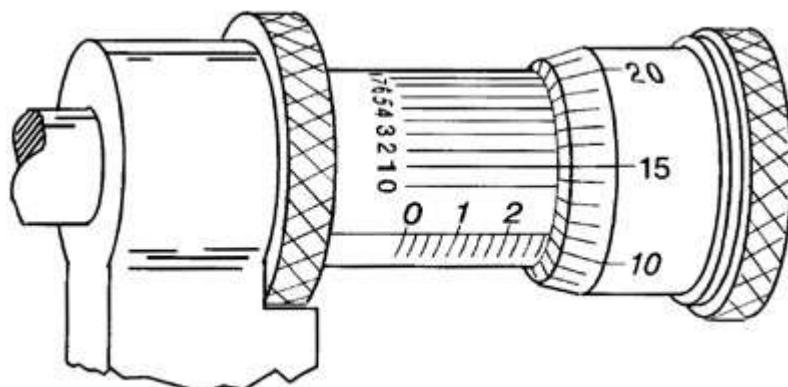
a- A stoichiometric mixture.	b- 1 part air to 11 parts fuel.
c- 1 part fuel to 11 parts air.	d- A lean mixture.

- 9. Where is the throttle valve located on a float-type carburetor?**
- a- After the main discharge nozzle and venturi.
 - b- Between the venturi and the discharge nozzle.
 - c- After the venturi and just before the main discharge nozzle.
 - d- Before the venturi, but after the butterfly valve.
- 10. At what engine speed does the main metering jet actually function as a metering jet in a float-type carburetor?**
- a- All RPM's. b- Cruising RPM only.
 - c- Maximum RPM only. d- All RPM's above idle range.
- 11. If the main air bleed of a float-type carburetor becomes clogged, the engine will run:**
- a- Lean at rated power. b- Rich at rated power.
 - c- Rich at idling. d- Lean at idling.
- 12. The fuel level within the float chamber of a properly adjusted float-type carburetor will be:**
- a- Slightly higher than the discharge nozzle outlet.
 - b- Slightly lower than the discharge nozzle outlet.
 - c- At the same level as the discharge nozzle outlet.
 - d- Unrelated to the discharge nozzle outlet position.
- 13. Fuel is discharged for idling speeds on a float-type carburetor:**
- a- From the idle discharge nozzle.
 - b- In the venturi.
 - c- Through the idle discharge air bleed.
 - d- Through the main discharge nozzle.
- 14. What component is used to ensure fuel delivery during periods of rapid engine acceleration?**
- a- Acceleration pump. b- Water injection pump.
 - c- Power enrichment unit. d- Standby carburetor.
- 15. On a float-type carburetor, the purpose of the economizer valve is to:**
- a- Provide extra fuel for sudden acceleration of the engine.
 - b- Maintain the leanest mixture possible during cruising best power.
 - c- Provide a richer mixture and cooling at maximum power output.
 - d- Economize on the amount of fuel discharged into the induction system.
- 16. The primary purpose of the air bleed openings used with continuous flow fuel injector nozzles is to:**
- a- Provide for automatic mixture control.
 - b- Lean out the mixture.
 - c- Rich out the mixture.
 - d- Aid in proper fuel vaporization.
- 17. The device that controls the ratio of the fuel/air mixture to the cylinders is called a:**
- a- Throttle valve. b- Mixture control.
 - c- Metering jet. d- An acceleration pump.

- 18.** A reciprocating engine automatic mixture control responds to changes in air density caused by changes in:
- a- Altitude or humidity.
 - b- Altitude only.
 - c- Altitude or temperature.
 - d- Temperature or humidity.
- 19.** A carburetor is prevented from leaning out during quick acceleration by the:
- a- Power enrichment system.
 - b- Mixture control system.
 - c- Accelerating system.
 - d- Boost venture system.
- 20.** A punctured float in a float-type carburetor will cause the fuel level to:
- a- Lower, and enrich the mixture.
 - b- Rise, and enrich the mixture.
 - c- Rise, and lean the mixture.
 - d- Lower, and lean the mixture.

ادوات خدمة وتجهيز الطائرات

- 21.** Unless otherwise specified, torque values for tightening aircraft nuts and bolts relate to:
- a- Clean, dry threads
 - b- Clean, lightly oiled threads
 - c- Both dry and lightly oiled threads
 - d- Well oiled threads
- 22.** Identify the correct statement
- a- An outside micrometer is limited to measuring diameters
 - b- Tools used on certificated aircraft must be an approved type
 - c- Dividers do not provide a reading when used as a measuring device
 - d- Micrometer calipers are used to find the center of a shaft or other cylindrical work
- 23.** Which tool is used to find the center of a shaft or other cylindrical work?
- a- Combination set
 - b- Dial indicator
 - c- Micrometer caliper
 - d- Surface gauge
- 24.** If the thimble of a standard micrometer caliper, graduated in thousandths of an inch, is turned one full revolution, the spindle will move:
- a- 0.010
 - b- 0.040
 - c- 1.000
 - d- 0.025
- 25.** (Refer to the Figure) The measurement reading on the illustrated micrometer is:



- a- 0.2851
- b- 0.2911
- c- 0.2901
- d- 0.2900

- 26. The identifying marks on the heads of aluminum alloy rivets indicate the:**
- Degree of dimensional and process control observed during manufacture
 - Head shape, shank size, material used, and specifications adhered to during manufacture
 - Length of the rivets
 - Specific alloy used in the manufacture of the rivets
- 27. The dimensions of an MS20430AD-4-8 rivet are:**
- 1/8 inch in diameter and 1/4 inch long
 - 1/8 inch in diameter and 1/2 inch long
 - 4/16 inch in diameter and 8/32 inch long
 - 1/2 inch in diameter and 8/32 inch long
- 28. Aircraft bolts are usually manufactured with a:**
- Class 1 fit for the threads
 - Class 2 fit for the threads
 - Class 3 fit for the threads
 - Class 4 fit for the threads
- 29. Which statement regarding aircraft bolts is correct?**
- When tightening castellated nuts on drilled bolts, if the cotter pin holes do not line up, it is permissible to overtighten the nut to permit alignment of the next slot with the cotter pin hole
 - In general, bolt grip lengths should equal the material thickness.
 - Alloy steel bolts smaller than 1/4-inch diameter should not be used in primary structure.
 - AN standard steel bolts are marked with two raised dashes on the bolt head
- 30. Generally speaking, bolt grip lengths should be:**
- Equal to the thickness of the material which is fastened together, plus approximately one diameter
 - Equal to the thickness of the material which is fastened together
 - One and one half times the thickness of the material which is fastened together
 - At least three times the thickness of the thinnest sheet
- 31. A bolt with a single raised dash on the head is classified as an**
- AN corrosion-resistant steel bolt
 - NAS standard aircraft bolt
 - NAS close tolerance bolt
 - AN aluminum bolt
- 32. Where is an AN clevis bolt used in an airplane?**
- For tension and shear load conditions.
 - Where external tension loads are applied
 - Only for shear load applications
 - In landing gear assemblies

- 33.** A fiber-type, self-locking nut must never be used on an aircraft if the bolt is
- a- Under shear loading
 - b- Under tension loading
 - c- Subject to rotation
 - d- To be mounted in a vertical position
- 34.** Which defect in aircraft finishes may be caused by adverse humidity, drafts, or sudden changes in temperature?
- | | |
|----------------|-------------|
| a- Orange peel | b- Pinholes |
| c- Spray dust | d- Blushing |
- 35.** What is the usual cause of runs and sags in aircraft finishes?
- a- Too much material applied in one coat.
 - b- Material is being applied too fast
 - c- Low atmospheric humidity
 - d- Material drying too fast
- 36.** Which properly applied finish topcoat is the most durable and chemical resistant?
- | | |
|----------------------|--------------------|
| a- Synthetic enamel | b- Acrylic lacquer |
| c- Synthetic lacquer | d- Polyurethane |
- 37.** If registration numbers are to be applied to an aircraft with a letter height of 12 inches, what is the minimum space required for the registration mark N1683C?
Note:
- 2/3 x height = character width.
 1/6 x height = width for 1.
 1/4 x 2/3 height = spacing.
 1/6 x height = stroke or line width
- | | |
|--------------|--------------|
| a- 52 inches | b- 48 inches |
| c- 57 inches | d- 60 inches |
- 38.** Cylinders used to transport and store acetylene:
- a- Are pressure tested to 3,000 PSI
 - b- Are green in color
 - c- Contain acetone
 - d- Are purged after each use
- 39.** Acetylene at a line pressure above 15 PSI is:
- a- Dangerously unstable
 - b- Stable
 - c- Used when a reducing flame is necessary
 - d- Usually necessary when welding metal over 3/8-inch thick
- 40.** In selecting a torch tip size to use in welding, the size of the tip opening determines the:
- a- Temperature of the flame
 - b- Melting point of the filler metal
 - c- Type of the flame
 - d- Amount of heat applied to the work

مبادئ الطيران**41. The equation for calculating lift over an airfoil is:**

- | | |
|---|---|
| a- $L = CL \times \frac{1}{2} \rho \times S.$ | b- $L = CL \times \rho V^2 \times S.$ |
| c- $L = CL \times \frac{1}{2} \rho V^2.$ | d- $L = CL \times \frac{1}{2} \rho V^2 \times S.$ |

42. The point where the effective lift is concentrated is known as the centre of:

- | | |
|-------------|--------------|
| a- Gravity. | b- Pressure. |
| c- Thrust. | d- Drag. |

43. The angle between the chord line and the relative wind is known as the:

- | | |
|------------------------|---------------------|
| a- Angle of friction. | b- Angle of attack. |
| c- Angle of incidence. | d- Bank angle. |

44. When the lift of an airfoil increases, the drag will?

- | | |
|---|--|
| a- Decrease. | |
| b- Increase while the lift is changing but will return to its original value. | |
| c- Not change. | |
| d- also increase. | |

45. When an aircraft increases its speed from 100 knots to 200 knots, its parasite drag will increase?

- | | |
|-------------|-------------|
| a- 2 times. | b- 4 times. |
| c- 6 times. | d- 8 times. |

46. The chord of a wing is measured from:

- | | |
|-----------------------------------|--|
| a- Wingtip to wingtip. | |
| b- Wing root to wing root. | |
| c- Wing root to the wingtip. | |
| d- Leading edge to trailing edge. | |

47. Which of the following describes the changes to airflow over the upper surface of a wing?

- | | |
|--|--|
| a- Velocity increases, pressure decreases. | |
| b- Velocity increases, pressure increases. | |
| c- Both velocity and pressure decrease. | |
| d- Both velocity and pressure increase. | |

48. What physical factors are involved in the aspect ratio of airplane wings?

- | | |
|-------------------------|----------------------------------|
| a- Thickness and chord. | b- Thickness and span. |
| c- Span and chord. | d- Dihedral and angle of attack. |

49. As the angle of attack of an airfoil increases, the center of pressure will:

- | | |
|--|--|
| a- Move toward the trailing edge | |
| b- Remain stationary because both lift and drag components increase proportionally to increased angle of attack. | |
| c- Remain stationary because of no change in the incidence angle. | |
| d- Move toward the leading edge. | |

- 50.** If the control stick of an aircraft with properly rigged flight controls is moved rearward and to the left, the right aileron will move:
- a- Down and the elevator will move down.
 - b- Up and the elevator will move down.
 - c- Up and the elevator will move up.
 - d- Down and the elevator will move up.
- 51.** With which system is differential control associated?
- | | |
|--------------|-------------|
| a- Trim. | b- Aileron. |
| c- Elevator. | d- Rudder. |
- 52.** All types of trailing edge flaps:
- a- Decrease CL(max) and increase CD.
 - b- Increase CL(max) and decrease CD.
 - c- Increase both CL(max) and CD.
 - d- Decrease both CL(max) and CD.
- 53.** What type of flap system increases the wing area and changes the wing camber?
- | | |
|------------------|-------------------|
| a- Fowler flaps. | b- Slotted flaps. |
| c- Split flaps. | d- Plain flaps. |
- 54.** The purpose of wing slats is to:
- | | |
|-------------------------------|---------------------------|
| a- Reduce stalling speed. | b- Decrease drag. |
| c- Increase speed on takeoff. | d- Increase wing loading. |
- 55.** An airplane which has good longitudinal stability should have a minimum tendency to:
- | | |
|----------|-----------------|
| a- Roll. | b- Pitch. |
| c- Yaw. | d- Adverse yaw. |
- 56.** An aircraft is designed with its CG located in front its CP:
- a- To have pitching up tendency.
 - b- To have pitching down tendency.
 - c- To increase lateral stability.
 - d- To increase longitudinal stability.
- 57.** An airplane is controlled directionally about its vertical axis by:
- a- The elevator(s).
 - b- The ailerons.
 - c- A combination of two of the above.
 - d- The rudder.
- 58.** The elevators of a conventional airplane are used to provide rotation about the:
- | | |
|-----------------------|------------------|
| a- Longitudinal axis. | b- Lateral axis. |
| c- Vertical axis. | d- Normal axis. |

59. Lateral stability is stability about the:

- | | |
|------------------|-----------------------|
| a- Lateral axis. | b- Vertical axis. |
| c- Normal axis. | d- Longitudinal axis. |

60. The purpose of aircraft wing dihedral is to increase:

- | | |
|---------------------------|----------------------------------|
| a- Lateral stability. | b- Longitudinal stability. |
| c- Directional stability. | d- Lift coefficient of the wing. |

المحركات الترددية

61. If the exhaust valve of a four-stroke cycle engine is closed and the intake valve is just closed, the piston is on the

- | | |
|-----------------------|--------------------|
| a- Compression Stroke | b- Ignition Stroke |
| c- Power Stroke | d- Intake Stroke |

62. Backfiring through the carburetor generally results from the use of

- a- An excessively lean mixture.
- b- Very rich mixture
- c- Delay of spark ignition
- d- Long flame

63. Excessive valve clearance in a piston engine

- a- Increases valve overlap.
- b- Increases valve opening time.
- c- Decreases valve overlap.
- d- Cause an after firing in an aircraft engine

64. One of the best indicators of reciprocating engine combustion chamber problems is

- a- Spark plug condition.
- b- Starting difficulties.
- c- Excessive engine vibration.
- d- Piston ring leakage.

65. Which condition would be the least likely to be caused by failed or failing engine bearings?

- a- Low oil temperatures.
- b- Excessive oil consumption.
- c- High oil temperatures.
- d- High pressure.

66. Which of the following is a characteristic of a thrust bearing used in most radial engines?

- | | |
|---------------------|----------------------|
| a- Tapered roller. | b- Deep groove ball. |
| c- Double row ball. | d- Single row ball. |

67. The five events of a four stroke cycle engine in the order of their occurrence are

- a- Intake, ignition, compression, power, exhaust.
- b- Intake, compression, ignition, power, exhaust.
- c- Intake, power, compression, ignition, exhaust.
- d- Intake, ignition, power, compression, exhaust.

- 68. On which strokes are both valves on a four-stroke cycle reciprocating aircraft engine open?**
- a- Exhaust and intake.
 - b- Power and exhaust.
 - c- Intake and compression.
 - d- Compression and Intake.
- 69. What tool is generally used to measure the crankshaft rotation in degrees?**
- a- Prop Protractor.
 - b- Dial indicator.
 - c- Timing disk.
 - d- Caliber
- 70. What is the purpose of the safety circlet installed on some valve stems?**
- a- To hold the valve spring retaining washer in position.
 - b- To prevent valves from falling into the combustion chamber.
 - c- To hold the valve guide in position.
 - d- To prevent valves from rotating.
- 71. The primary purpose in setting proper valve timing and overlap is to**
- a- Obtain the best volumetric efficiency and lower cylinder operating temperatures.
 - b- Permit the best possible charge of fuel/air mixture into the cylinders.
 - c- Gain more thorough exhaust gas scavenging.
 - d- To protect cylinder from excessive wear.
- 72. The purpose of two or more valve springs in aircraft engines is to**
- a- Eliminate valve spring surge.
 - b- Equalize side pressure on the valve stems.
 - c- Equalize valve face loading.
 - d- To minimize the malfunction of the valve.
- 73. The volume of a cylinder equals 70 cubic inches when the piston is at bottom center. When the piston is at the top of the cylinder, the volume equals 10 cubic inches. What is the compression ratio?**
- a- 1:7.
 - b- 7:10.
 - c- 7:1.
 - d- 10:70
- 74. How may it be determined that a reciprocating engine with a dry sump is pre oiled sufficiently?**
- a- When the quantity of oil specified by the manufacturer has been pumped into the engine.
 - b- Oil will flow from the engine return line or indicator port.
 - c- The engine oil pressure gauge will indicate normal oil pressure.
 - d- It will be seen by the sight gage.
- 75. Excessive valve clearance results in the valves opening**
- a- Late and closing early.
 - b- Late and closing late.
 - c- Early and closing late.
 - d- Early and closing early.
- 76. What color paint is used to identify an aircraft engine cylinder having nitrided walls:**
- a- Orange
 - b- Green
 - c- Yellow
 - d- Blue
- 77. What material is used to partially fill hollow exhaust valves to aid in heat dissipation:**
- a- Sodium chloride.
 - b- Ammonium nitrate.
 - c- Metallic bismuth.
 - d- Metallic sodium

78. A possible cause for fluctuating EGT and RPM is:

- a- Throttle to idle.
- b- Anti-icing valve (system OFF).
- c- Battery is OFF.
- d- Wrong air-fuel mixture.

79. The location Of a temperature control valve sensing unit in a dry sump reciprocating engine is at the:

- | | |
|----------------------|-------------------|
| a- Oil cooler inlet. | b- Engine outlet. |
| c- Oil strainer. | d- Engine inlet. |

80. Flashover in a distributor results from:

- a- A reversal of current flow
- b- An intense voltage at spark plug.
- c- A conductive carbon trail
- d- Erosion of cigarette

المحركات النفاثة

81. At what point in an axial flow turbojet engine will the highest gas pressures occur?

- a- At the turbine entrance.
- b- Within the burner section.
- c- At the compressor outlet (burner inlet).
- d- At the turbine outlet.

82. One function of the nozzle diaphragm in a turbine engine is to?

- a- Direct the flow of gases to strike the turbine blades at the desired angle.
- b- Center the fuel spray in the combustion chamber.
- c- Decrease the velocity of exhaust gases.
- d- Decelerate the hot gases before strikes the turbine blades

83. The abbreviation "P" with subscript Pt7 used in turbine engine terminology means:

- a- The total inlet pressure.
- b- Pressure and temperature at station No. 7.
- c- The total pressure at station No. 7.
- d- The total power at station No. 7.

84. In a gas turbine engine, combustion occurs at a constant:

- | | |
|-------------|-----------------|
| a- Volume. | b- Pressure. |
| c- Density. | d- Temperature. |

85. Some engine manufacturers of twin spool gas turbine engines identify turbine discharge pressure in their maintenance manuals as:

- | | |
|---------|---------|
| a- Pt7. | b- Tt7. |
| c- Pt2. | d- Tp7 |

86. The turbine section of a jet engine:

- a- Increases air velocity to generate thrust forces.
- b- Utilizes heat energy to expand and accelerate the incoming gas flow.
- c- Drives the compressor section.
- d- Is located after the compressor section and before the nozzle section.

- 87. In the dual axial flow or twin spool compressor system, the first stage turbine drives the:**
- a- N1 compressor.
 - b- N2 compressor.
 - c- N1 and N2 compressors.
 - d- None of the above.
- 88. When starting a turbine engine, a hung start is indicated if the engine**
- a- Exhaust gas temperature exceeds specified limits.
 - b- Fails to reach idle RPM.
 - c- RPM exceeds specified operating speed.
 - d- Pressure exceeds critical value.
- 89. The function of the exhaust cone assembly of a turbine engine is to**
- a- Swirl and collect the exhaust gases into a single exhaust jet.
 - b- Straighten and collect the exhaust gases into a solid exhaust jet.
 - c- Collect the exhaust gases and act as a noise suppressor.
 - d- Directs the hot gases towards the exhaust.
- 90. What are the two functional elements in a centrifugal compressor?**
- a- Turbine and compressor.
 - b- Impeller and diffuser.
 - c- Bucket and expander.
 - d- Rotor & stator.
- 91. What is the first engine instrument indication of a successful start of a turbine engine A rise in?**
- a- The engine fuel flow.
 - b- Oil pressure.
 - c- The exhaust gas temperature.
 - d- Amperage of the electronic circuite.
- 92. What is one purpose of the stator blades in the compressor section of a turbine engine?**
- a- Stabilize the pressure of the airflow.
 - b- Increase the velocity of the airflow.
 - c- Control the direction of the airflow.
 - d- To slow down the intake air.
- 93. What is the purpose of the diffuser section in a turbine engine?**
- a- To reduce pressure and increase velocity.
 - b- To convert pressure to velocity.
 - c- To increase pressure and reduce velocity.
 - d- To direct hot gases out of turbine.
- 94. Jet engine turbine blades removed for detailed inspection must be reinstalled in**
- a- A specified slot 180° away.
 - b- A specified slot 90° away in the direction of rotation.
 - c- The same slot.
 - d- Any slot.
- 95. What is the proper starting sequence for a turbojet engine?**
- a- Starter, ignition, fuel.
 - b- Starter, fuel, ignition.
 - c- Ignition, starter, fuel.
 - d- Fuel, starter and ignition.

انتهت الأسئلة