

**012/2025**

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. The thickness between the two flutes in a drill is called :  
(A) Web (B) Face  
(C) Flank (D) Land
2. What is the accuracy of vernier bevel protractor?  
(A) 2 minute (B) 3 minute  
(C) 4 minute (D) 5 minute
3. What is the angle of centre punch?  
(A) 60 degree (B) 45 degree  
(C) 30 degree (D) 90 degree
4. A cutting tool used to finish and enlarge a hole is known as :  
(A) Reamer (B) Drill  
(C) Tap (D) Die
5. It is the process of removing very small chips from the metal surface by means of a sharp edged tool, what is the tool called as?  
(A) Chisel (B) Scrapers  
(C) Hacksaw (D) Scriber
6. The size of a vernier height gauge is specified by :  
(A) Width of beam (B) Size of the scriber  
(C) Height of the beam (D) Weight of the height gauge
7. The metal ring on the file handle is called :  
(A) Heel (B) Ferrule  
(C) Stand (D) Tang

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**[P.T.O.]**

8. The least count of an engineer's steel rule is :
- (A) 1 mm (B) 2 mm  
(C) 0.5 mm (D) 5 mm
9. In combination set which head is used to mark and check 45 degree and 90 degree angle?
- (A) Protractor head (B) Centre head  
(C) Rule head (D) Square head
10. When using universal surface gauge which part is used to draw line parallel to the datum edge?
- (A) Rocker arm (B) Guide pin  
(C) Spindle (D) Scriber
11. Which of the following statement is / are correct about with a metric outside micrometer?
- (i) Fixed measuring face is known as Anvil.  
(ii) Fixed measuring face is known as spindle.  
(iii) 0.01 mm accuracy can be got while measuring.
- (A) Only (i) and (iii) (B) Only (i)  
(C) Only (ii) and (iii) (D) Only (iii)
12. Which type of instrument mentioned below is used to measure the height of the projection?
- (A) Outside micrometer (B) Inside micrometer  
(C) Telescopic gauge (D) Depth micrometer
13. On a Vernier Calliper, where are the main scale graduations marked?
- (A) Beam (B) Movable jaw  
(C) Depth blade (D) Fixed jaw
14. Which instrument is used to check the endplay of a shaft?
- (A) Telescopic gauge (B) Dial test indicator  
(C) Bore dial gauge (D) Slip gauge

15. Which part ensures uniform pressure on the measuring faces in the outside micrometer?
- (A) Ratchet Stop (B) Barrel  
(C) Spindle (D) Thimble
16. Which of the following statement is / are correct about with a standard metric outside micrometer?
- (i) One complete revolution of the thimble, spindle moves a distance of 0.5 mm.  
(ii) Thimble portion is knurled to provide good grip for holding and rotating the spindle.  
(iii) Spindle lock is provided on the thimble.
- (A) Only (i) and (iii)  
(B) Only (ii) and (iii)  
(C) Only (i) and (ii)  
(D) All of the above (i), (ii) and (iii)
17. Which of the following engine cylinder dimensions may be measured with a cylinder bore gauge?
- (A) Inside diameter (B) Taper inside the cylinder  
(C) Out of roundness (D) All of the above
18. Which of the following statement is / are correct for taking accurate measurements with a Telescopic gauge?
- (i) No other instrument is needed for taking measurements.  
(ii) Suitable outside micrometer is needed for measurements.  
(iii) Telescopic gauge is an indirect measuring instrument.
- (A) Only (i)  
(B) Only (ii) and (iii)  
(C) Only (i) and (ii)  
(D) All of the above (i), (ii) and (iii)
19. Which one of the instruments mentioned below is used to check the concentricity of the outside dimensions of a shaft?
- (A) Vernier height gauge (B) Vernier caliper  
(C) Dial test indicator (D) Thread pitch gauge

20. Which can be measured by a feeler gauge?
- (A) Gap between mating parts (B) Radius  
(C) Screw pitch (D) Surface roughness
21. The distance through which a screw thread advances axially in one complete turn is called :
- (A) Lag of thread (B) Depth of thread  
(C) Diameter of thread (D) Lead of thread
22. Which is the tool to check the pitch diameter of an external screw thread?
- (A) Screw pitch gauge (B) Ring gauge  
(C) Screw thread Micrometer (D) Vernier caliper
23. A rivet is specified by the diameter of its :
- (A) Head (B) Shank  
(C) Tail (D) Cover plate
24. Which one of the following threads, is used on mechanical jack?
- (A) Square (B) ACME  
(C) BSW (D) BSF
25. A split pin is used for locking purposes in :
- (A) Flanged nut (B) Square nut  
(C) Castle nut (D) Check nut
26. What is the shape of head of a thumb screw?
- (A) Hexagonal (B) Square  
(C) Triangular (D) Circular
27. The surface joining crest and the root of an external 'V' thread is known as :
- (A) Depth of thread (B) Flank  
(C) Thread angle (D) Lead

28. What is the name of arrangement made in a fastening system which is used to prevent loosening of nuts due to vibration?
- (A) Plain washer (B) Spring washer  
(C) Split washer (D) Double washer
29. Which stress is acting on a key that is used in the fastening system on a shaft during transmission of torque?
- (A) Compressive stress (B) Tensile stress  
(C) Bending stress (D) Shear stress
30. Which nut provided with Nylon ring in the groove?
- (A) T-nut (B) Castle nut  
(C) Self-locking nut (D) Slotted nut
31. The tool for holding and turning the threading die is called :
- (A) Die-stoke (B) Die-stroke  
(C) Die-core (D) Die-stake
32. Which of the following statement is / are correct regarding thread rolling process?
- (i) It is a cold forming process.  
(ii) In which tapered threads are formed on round rods by passing them between dies.  
(iii) It is a hot forming process.  
(iv) It improves the strength of the thread.
- (A) All the above (i), (ii), (iii) and (iv)  
(B) Only (i), (ii) and (iii)  
(C) Only (i), (ii) and (iv)  
(D) Only (iii) and (iv)

**33.** Which of the following statement is /are correct about thread rolling machines make use of flat dies?

- (i) Thread is formed by a single pass of the moving dies.
- (ii) Thread is formed by a multiple pass of the moving dies.
- (iii) The groove of one die will slope in the opposite direction.
- (iv) Both dies have slope in the same direction.

- (A) Only (i) and (iii)
- (B) Only (ii) and (iv)
- (C) All the above (i), (ii), (iii) and (iv)
- (D) None of the above (i), (ii), (iii) and (iv)

**34.** Dies are used to cut thread :

- (A) Externally on a round bar of metal
- (B) Inside of a hole
- (C) Both internally and externally
- (D) Neither internally nor externally

**35.** Which of the following statement is / are correct about die head fitted on Capston and Turrent lathes for forming threads on the ends of workpiece?

- (i) It has self-opening characteristics.
- (ii) Blades to be carried in the body of the die head.
- (iii) Blade is not a part of the die head.

- (A) Neither (i) nor (ii)
- (B) Both (i) and (ii)
- (C) Only (iii)
- (D) Only (i)

**36.** Tap is usually made of :

- (i) High speed steel
- (ii) Carbon steel
- (iii) Galvanised steel
- (iv) Beryllium

- (A) Only (i)
- (B) Both (iii) and (iv)
- (C) Only (ii)
- (D) Both (i) and (ii)

37. Chipless tapping is a process of \_\_\_\_\_ using a forming tap.
- (A) External threading (B) Spreading  
(C) Internal thread rolling (D) Cluster threading
38. The second tap used after taper to cut threads on the inside of a hole is also called :
- (A) Die tap (B) Rougher tap  
(C) Finisher tap (D) Plug tap
39. The combination of drilling and tapping in a single tool is termed as :
- (A) Popping (B) Drapping  
(C) Doping (D) Capping
40. Which of the following formula being used to calculate the diameter of tap drill size? Where D – is the diameter of the tap drill size, T – is the diameter of the tap and d – is the depth of thread?
- (A)  $D = T - d$  (B)  $D = T - 3d$   
(C)  $D = T - 2d$  (D)  $D = T - 0.5d$
41. Which of the following is/are pressure control valves used in the fluid power system?
- (i) Sequence valves  
(ii) Unloading valves  
(iii) Sliding spool valves  
(iv) Rotary valves
- (A) Only (iii) (B) Both (iii) and (iv)  
(C) Only (iv) (D) Both (i) and (ii)
42. The plug valves are mainly suitable for low pressure and low temperature application, it is also called :
- (A) Butterfly valves (B) Cocks  
(C) Check valves (D) Pilot valves
43. \_\_\_\_\_ is a device used for storing the energy of a liquid in the form of pressure energy.
- (i) Hydraulic accumulator  
(ii) Hydraulic intensifier  
(iii) Hydraulic toggle
- (A) Only (ii) (B) Only (i)  
(C) Only (iii) (D) All the above (i), (ii) and (iii)

44. In a hydraulic jack the load on the ram can be lowered with the help of a :
- (A) Lowering screw (B) Delivery valve  
(C) Suction valve (D) Plunger
45. Which of the following statement is/are true about pressure regulator used in pneumatic circuit?
- (A) Maintain a constant pressure irrespective of the fluctuation in supplying the compressed air  
(B) Maintain a constant velocity irrespective of the fluctuation in supplying the compressed air  
(C) Maintain a varying pressure irrespective of the fluctuation in supplying the compressed air  
(D) Maintain a varying velocity irrespective of the fluctuation in supplying the compressed air
46. Which of the following is/are not a component of a hydraulic parking system?
- (i) Master cylinder  
(ii) Proportioning valve  
(iii) Expansion valve  
(iv) Metering valve
- (A) Only (ii) (B) Only (iv)  
(C) Only (iii) (D) Both (ii) and (iv)
47. The primary function of the fluid coupling is to :
- (i) Provide torque subtraction.  
(ii) Provide torque multiplication.  
(iii) Transmit power with same torque on the driving and driven shaft.
- (A) Only (i) (B) Only (ii)  
(C) Both (i) and (ii) (D) Only (iii)

48. Which of the following is/are as rotary air compressor?
- (i) Axial flow compressor
  - (ii) Radial flow compressor
  - (iii) Reciprocating compressor
  - (iv) Roots blower
- (A) Only (i) (B) Only (ii) and (iii)  
(C) All the above (i), (ii), (iii) and (iv) (D) Only (i), (ii) and (iv)
49. \_\_\_\_\_ is a device which converts pneumatic power into required mechanical power by reducing the pressure of compressed air to atmospheric.
- (A) Brake valve (B) Air cylinder  
(C) Draft (D) Scroller
50. Which of the following below is / are pneumatic check valve?
- (i) Flap valve
  - (ii) Pressure limiting valve
  - (iii) Ball valve
  - (iv) Disc valve
- (A) Only (ii)  
(B) Both (ii) and (iv)  
(C) Both (i) and (iii)  
(D) All of the above (i), (ii), (iii) and (iv)
51. Engines with stroke/bore ratio less than 1 are called :
- (A) Square engine (B) Oversquare engine  
(C) Undersquare engine (D) Wankel engine
52. Which part of the Automobile engine is used Variable Resonance Induction System technology?
- (A) Air Filter (B) Inlet Manifold  
(C) Piston (D) Cylinder head

53. By increasing 10 KPa pressure, inside the radiator with the help of a pressure cap, the boiling point of coolant will increase :
- (A) 1°C (B) 2.5°C  
(C) 10°C (D) 5°C
54. Which theory states that the “detonation is caused due to the presence of peroxide substance formed in nuclear drops of unvaporised fuel, which acts as foci for the sudden ignition of the unburnt charge”?
- (A) Ricardo’s Theory (B) Callender’s Theory  
(C) Lewi’s Theory (D) Otto Theory
55. In Automobile Engine lubrication system, Bypass valve is fitted on :
- (A) Oil Pump (B) Oil Filter  
(C) Oil gallery (D) Oil Strainer
56. Vibration damper is a small flywheel which is fixed to :
- (A) Front end of camshaft (B) Front end of crankshaft  
(C) Rear end of camshaft (D) Rear end of crankshaft
57. Disadvantage of an Air cooling system is :
- (A) The volumetric efficiency is less  
(B) Due to higher working temperature, fuel consumption is more  
(C) Due to higher working temperature, deposit of carbon is more  
(D) Engine attains operating temperature slowly
58. Which side of the piston is maximum thrust side, when the engine is running in clockwise direction and seen from the front of the engine?
- (A) Right side of the piston (B) Left side of the piston  
(C) Front of the piston (D) Back of the piston
59. In a Four stroke Diesel engine, when the diesel fuel is injected into the engine cylinder?
- (A) At the end of suction stroke  
(B) At the end of power stroke  
(C) At the end of compression stroke  
(D) At the starting of compression stroke

60. Which type of Fuel injector gives, atomized fuel in cone spray form?  
 (A) Single hole type (B) Multi hole type  
 (C) Plunger type (D) Pintle type
61. Which type of cold starting device is used in Stationary single cylinder diesel engines?  
 (A) Decompression device (B) Heater plug  
 (C) Inlet manifold heater (D) Chemical spray
62. Which part of the engine stores the energy received in power stroke and keeps the crankshaft rotating in idle stroke?  
 (A) Piston (B) Connecting rod  
 (C) Flywheel (D) Crankshaft
63. What is the speed of slow speed marine engines?  
 (A) More than 750 rpm (B) Between 500 rpm and 750 rpm  
 (C) Between 350 rpm and 500 rpm (D) Below 350 rpm
64. Deflector pistons are used in :  
 (A) Two stroke engines (B) Four stroke engines  
 (C) Both (A) and (B) (D) 4 + 2 stroke engine
65. A \_\_\_\_\_ is an engine whose framework does not move.  
 (A) Marine engine (B) Automobile engine  
 (C) Both (A) and (B) (D) Stationary engine
66. In \_\_\_\_\_ Scavenging type, inlet and exhaust ports are provided on opposite sides of cylinder.  
 (A) Uniflow (B) Loop  
 (C) Both (A) and (B) (D) Unidirectional
67. In \_\_\_\_\_ type combustion chamber, the fuel is injected into an auxiliary chamber, which houses almost full charge at the end of compression stroke and is nearly spherical in shape.  
 (A) Open combustion chamber (B) Precombustion chamber  
 (C) Turbulance chamber (D) Direct injection chamber

68. Which engine part have most difficult sealing problem?
- (A) Inlet manifold (B) Timing Cover  
(C) Oil sump (D) Cylinder head
69. Which one of the following statement is not true about the Fuel Feed Pump?
- (A) It is driven by F.I.P. Camshaft  
(B) It is mounted on Fuel Tank  
(C) It sucks fuel from the fuel tank  
(D) It is mounted on F.I.P.
70. Which one of the following is not a part of CRDI engine?
- (A) Fuel Injection Pump (B) Fuel Injector  
(C) Electric Fuel pump (D) Fuel Tank
71. Camshafts are driven by :
- (A) Timing gears  
(B) Sprockets and timing chain  
(C) Sprockets and toothed timing belts  
(D) All of these
72. The purpose of harmonic balancer in crank shaft is :
- (A) For balancing the crank shaft  
(B) For controlling torsional vibrations  
(C) To limit forward and backward movement of crank shaft  
(D) All of these
73. Which among the following methods is used to control expansion of piston?
- (i) Increasing the thickness of the metal in the head  
(ii) Using cam-ground pistons  
(iii) Using steel struts cast into the piston
- (A) Only (i) (B) Both (i) and (ii)  
(C) Both (i) and (iii) (D) All of them

74. Which among the following statement/statements is true regarding shape of combustion chamber?
- (i) The wedge shaped combustion chamber increases the turbulence of the burning mixture, but has high exhaust emissions.
  - (ii) The hemispherical combustion chamber provides fast burning.
  - (iii) The cup or bowl-in-piston combustion chamber reduces turbulence.
- (A) Only (i) (B) Only (ii)  
(C) Only (iii) (D) None of these
75. Which among the following statement/ statements is true in the case of pre combustion chamber?
- (i) Spark plugs are provided in both main combustion chamber and pre combustion chamber.
  - (ii) The auxiliary intake valve admits a lean mixture
  - (iii) The primary intake valve admits a lean mixture
- (A) Only (i) (B) Only (ii)  
(C) Only (iii) (D) All of them
76. The forward and rearward movement of the crankshaft is limited by:
- (A) Shaft journal (B) Thrust bearing  
(C) Sleeve Bearing (D) Vibration Damper
77. In order to reduce scuff wear, the upper most compression ring is plated with :
- (A) Chromium (B) Aluminium  
(C) Vanadium (D) Molybdenum
78. To avoid slapping tendency, piston pin in some engines are placed :
- (A) Centrally in the piston (B) Offset to minor thrust side  
(C) Offset to major thrust side (D) At the bottom of the piston
79. The engine valves are closed by :
- (A) Valve springs (B) Cam shaft  
(C) Tappet (D) None of these

80. The material used for inlet valve is usually :
- (A) Cast iron (B) Silicon Chromium steel  
(C) Aluminum Alloy (D) Austenitic steel
81. Condition under which NO<sub>x</sub> is formed in an IC engine :
- (A) Incomplete Combustion (B) High temperature  
(C) Both (A) and (B) (D) None of these
82. Condition under which CO is formed in an IC engine :
- (A) Incomplete combustion (B) Lack of oxygen  
(C) Both (A) and (B) (D) None of these
83. Which among the following favours knocking in SI engines?
- (A) Increases compression ratio (B) Supercharging  
(C) Advancing the spark timing (D) All the above
84. In which of the following petrol engine fuel supply system, a hermetically sealed fuel tank is used?
- (A) Pressure system (B) Gravity system  
(C) Pump system (D) Vacuum system
85. Which among the following is a constant venturi type carburetor?
- (A) S. U. Carburetor (B) Solex Carburetor  
(C) Zenith Carburetor (D) All of these
86. The reducing agent used in Selective Catalytic Reduction is :
- (A) Rhodium (B) Ammonia  
(C) Platinum (D) None of these
87. In a three way catalytic converter, the second converter controls :
- (A) Only HC (B) Only CO  
(C) Only NO<sub>x</sub> (D) Both HC and CO

88. In CI engines, ignition lag increases with :
- (A) Decrease in injection advance angle
  - (B) Increase in intake temperature
  - (C) Decrease in compression ratio
  - (D) All of these
89. In SI engines, the initiation of a flame front by a hot surface other than spark plug is called :
- (A) Surface ignition
  - (B) Pre ignition
  - (C) Auto ignition
  - (D) All of these
90. Which among the following methods can be employed for controlling diesel knock?
- (A) Increasing compression ratio
  - (B) Reducing delay period
  - (C) Increasing delay period
  - (D) None of these
91. In an electric circuit, the common point is the place where :
- (A) voltage divides
  - (B) feed current divides
  - (C) insulation thickens
  - (D) heat is a problem
92. The capacity of a battery is determined by the number of plates per cell and :
- (A) number of cells
  - (B) number of separators
  - (C) size of plates
  - (D) shape of plates
93. The minimum cranking speed in petrol engine usually is :
- (A) equal to the normal operating speed
  - (B) one-fourth of operating speed
  - (C) half of operating speed
  - (D) 60-80 rpm
94. A voltage that is fluctuating or pulsating should be measured with :
- (A) a test light
  - (B) a digital voltmeter
  - (C) a digital multimeter
  - (D) an analog voltmeter

95. Current will pass through a Diode when it is connected :
- (A) in reversed bias
  - (B) in forward bias
  - (C) to any suitable battery in any manner
  - (D) in opposed bias
96. In an Alternator the magnetic field is produced in the:
- (A) Rotor
  - (B) Frame
  - (C) Stator
  - (D) Regulator
97. A fuse in an electrical circuit 'blows' as the result of a high :
- (A) Voltage caused by a short circuit
  - (B) Current flow caused by a short circuit
  - (C) Current flow caused by an open circuit
  - (D) Voltage caused by an open circuit
98. Which type of winding is best suitable to produce a high starting torque in starter motor?
- (A) Shunt winding
  - (B) Compound winding
  - (C) Series winding
  - (D) Parallel winding
99. A thermistor is used in an Alternator regulator to :
- (A) control maximum current
  - (B) compensate for temperature change
  - (C) control maximum voltage
  - (D) to convert AC to DC
100. The reason for internal battery discharge is :
- (A) Damaged plate separator
  - (B) Damaged starter
  - (C) Burnt regulator contact
  - (D) Corrosive battery terminal

**SPACE FOR ROUGH WORK**

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