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Question Booklet Alpha Code

A

Question Booklet Sl. No.

A

Total Number of Questions : 100

Time : 90 Minutes

Maximum Marks : 100

INSTRUCTIONS TO CANDIDATES

1. The Question Paper will be given in the form of a Question Booklet. There will be four versions of Question Booklets with Question Booklet Alpha Code viz. **A, B, C & D**.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the Question Booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a Question Booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator **IMMEDIATELY**.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your Question Booklet is un-numbered, please get it replaced by new Question Booklet with same alpha code.
6. The Question Booklet will be sealed at the middle of the right margin. Candidate should not open the Question Booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the Question Booklet supplied to him/her contains all the 100 questions in serial order. The Question Booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the Question Booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices **(A), (B), (C)** and **(D)** having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

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1. How to exhibit the Mandatory signs ?
 - A) White symbol on blue background
 - B) Yellow background with black border and symbol
 - C) White symbols on green background
 - D) Black symbol on white background

2. Which one is not suitable for lifting heavy load ?
 - A) Sling
 - B) Winch
 - C) Jack
 - D) Crowbar

3. Sickness is a _____ type of hazard.
 - A) Biological
 - B) Physical
 - C) Physiological
 - D) Psychological

4. In 'ABC' of first aid, 'A' stands for
 - A) Aim
 - B) Airway
 - C) Ambulance
 - D) Aid

5. Which among the following is not a drill holding device ?
 - A) Chuck
 - B) Sleeve
 - C) Arbor
 - D) Socket

6. One volume of liquid acetone can dissolve _____ volume of acetylene gas under normal atmospheric temperature and pressure.
 - A) 25
 - B) 50
 - C) 10
 - D) 40

7. Bifurcated rivet is used
 - A) For joining heavy structural works
 - B) Where strong joint is required
 - C) Both option A) and B)
 - D) For fastening tin plates

8. Bottoming taps contain _____ rings on shank and the end of taps are chamfered at an angle of _____ degree.
 - A) 3 rings and 4 degree
 - B) 1 ring and 20 degree
 - C) 3 rings and 20 degree
 - D) 1 ring and 4 degree

9. Jenny caliper is also known as
 - i) Hermaphrodite
 - ii) Leg and point caliper
 - iii) Odd leg caliper
 - A) Only i and ii
 - B) All of the above (i, ii and iii)
 - C) Only ii and iii
 - D) Only i and iii

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10. Which statement is suitable for smooth file ?
- A) It is used for heavy reduction of metal
 - B) Bringing the jobs close to the finish size
 - C) Bring the metal to accurate size with high degree of finish
 - D) Remove small quantity of metal and give a good finish
11. In the case of a cold chisel, the angle between the top face of the cutting point, and normal to the work surface at the cutting edge is called
- A) Rake angle
 - B) Point angle
 - C) Clearance angle
 - D) Angle of inclination
12. The accuracy of try square is
- A) 0.02 mm per 10 mm length
 - B) 0.2 mm per 10 mm length
 - C) 0.0002 mm per 10 mm length
 - D) 0.002 mm per 10 mm length
13. 9 main scale divisions of a vernier caliper is divided into 10 equal parts in the vernier scale, find out 1 VSD of the same. (Consider 1 MSD = 1 mm)
- A) 0.02 mm
 - B) 0.1 mm
 - C) 0.9 mm
 - D) 0.98 mm
14. The datum line of an outside micrometer is stamped on
- A) Barrel
 - B) Thimble
 - C) Spindle
 - D) Anvil
15. Which among the following statement is not true ?
- A) Slot of standard wire gauge is used for checking thickness of the sheet
 - B) Hole of standard wire gauge is used for checking wire diameter
 - C) Slot of standard wire gauge is used for checking wire diameter and thickness of sheet
 - D) Slot of standard wire gauge is used for checking wire diameter
16. Types of Dial test indicators are
- i) Plunger type dial test indicator
 - ii) Lever type dial test indicator
 - iii) Washer type dial test indicator
- Which among the following is correct ?
- A) Only i and iii
 - B) All of the above (i, ii and iii)
 - C) Only ii and iii
 - D) Only i and ii

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17. The forward voltage, at which the current through the PN junction starts increasing rapidly is known as
- i) Cut off voltage
 - ii) Knee voltage
 - iii) Peak reverse voltage
 - iv) Cut in voltage
- A) Only i and ii B) Only ii and iv
C) Only i and iv D) All the above (i, ii, iii and iv)
18. Which of the following is/are Pentavalent impurities ?
- i) Antimony
 - ii) Boron
 - iii) Bismuth
- A) Only i and iii B) Only i and ii
C) Only ii and iii D) All the above (i, ii and iii)
19. Which of the following is/are the application of Zener diode ?
- i) Amplifier
 - ii) Peak clipper
 - iii) Voltage regulator
 - iv) Full wave rectifier
- A) Only i and iv B) Only ii and iv C) Only i and iii D) Only ii and iii
20. Parameters which determine the performance of a JFET is/are
- i) AC drain resistance
 - ii) Knee voltage
 - iii) Transconductance
- A) Only i and ii B) Only i and iii
C) Only ii and iii D) All the above (i, ii and iii)
21. In a linear resistor
- i) Resistant value is constant
 - ii) V and I are directly proportional
 - iii) V and I are inversely proportional
 - iv) Resistance value not constant
- A) Only i and iii B) Only i and iv C) Only i and ii D) Only iii and iv
22. According to the Ohm's law which of the statement is/are correct ?
- i) $I = V/R$
 - ii) $V = IR$
 - iii) $I = R/V$
 - iv) $R = VI$
- A) Only i and ii B) Only ii and iv C) Only i and iii D) Only iii and iv

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23. Current flowing through an open circuit is
i) Very high
ii) High
iii) No current flow
iv) Infinity
A) Only i and ii B) Only iii C) Only ii and iv D) Only iv
24. Function of Yoke is/are
i) It provides mechanical support for the poles
ii) It carries the magnetic flux produced by the poles
iii) It carries electrical supply
iv) It provides over all protection of machine
A) Only i and iii B) Only ii and iv C) Only i, ii and iv D) Only iii and iv
25. Commutator used in a DC generator is/are
i) to facilitate collection of current from the armature conductor
ii) to carrying field winding
iii) convert AC induced in the armature conductors into unidirectional current
A) Only i and iii B) Only ii and iii
C) Only i and ii D) All the above (i, ii and iii)
26. Self excited DC generators are classified into
i) Shunt wound
ii) Series wound
iii) Compound wound
A) Only i and ii B) Only ii and iii
C) Only i and iii D) All the above (i, ii and iii)
27. Iron losses in a DC generator is/are
i) Hysteresis losses
ii) Windage losses
iii) Eddy current losses
iv) All the above (i, ii and iii)
A) Only i and ii B) Only i and iii C) Only ii and iii D) Only iv
28. Which of the following starter is/are used to control a DC motor ?
i) DOL starter
ii) Star Delta starter
iii) 3-Point starter
iv) 4-Point starter
A) Only i and iii B) Only ii and iii C) Only ii and iv D) Only iii and iv

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29. The rotation of DC motor can be reversed by
- i) Reversing both the field current and armature current
 - ii) Reversing field current or armature current
 - iii) Increasing field current
- A) Only ii
 B) Only i and ii
 C) Only ii and iii
 D) All of the above (i, ii and iii)
30. The working principle of a transformer is based on the
- i) Faraday's law of electromagnetic induction
 - ii) Thumb rule
 - iii) Fleming's right hand rule
 - iv) Fleming's left hand rule
- A) Only ii and iii
 B) Only i
 C) Only ii and iv
 D) Only iii
31. A current carrying conductor placed in a magnetic field, it experiences a torque, this principle is related to
- i) Working of a generator
 - ii) Working of a motor
 - iii) Working of a transformer
- A) Only i and iii
 B) Only iii
 C) Only ii
 D) All the above (i, ii and iii)
32. Percentage of slip in an induction motor is
- i) $\frac{(N_s - N)}{N_s} \times 100$
 - ii) $\frac{(N - N_s)}{N_s} \times 100$
 - iii) $\frac{(N - N_s)}{N} \times 100$
- A) Only i
 B) Only ii and iii
 C) Only iii
 D) All the above (i, ii and iii)
33. Which of the following materials have small electrical resistivity ?
- i) Bakelite
 - ii) Aluminum
 - iii) Quartz
 - iv) Copper
- A) Only i and iii
 B) Only iii
 C) Only ii and iv
 D) Only i

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34. Which of the following materials come into the group of semiconductors ?
i) Gold
ii) Silver
iii) Copper
iv) Silicon
A) Only i and ii B) Only iii C) Only i and iii D) Only iv
35. For the normal operation of a transistor
i) Emitter – Base junction is forward biased and Collector – Base junction is reverse biased
ii) Emitter – Base junction is reverse biased and Collector – Base junction is forward biased
iii) Emitter – Base junction and Collector – Base junction are forward biased
A) Only i B) Only ii and iii C) Only iii D) Only ii
36. An ideal transformer which has
i) No losses
ii) Winding losses
iii) Copper losses and Core losses
A) Only ii B) Only i C) Only ii and iii D) Only iii
37. Main advantages of FET over BJT is/are
i) High input impedance
ii) Less noise level
iii) Low input impedance
iv) Considerable noise level
A) Only iii and iv B) Only ii C) Only iii D) Only i and ii
38. BJT is a
i) Voltage control device
ii) Power controlled device
iii) Current controlled device
A) Only i and ii B) Only ii
C) Only iii D) All the above (i, ii and iii)
39. Most commonly methods used for fabrication of transistor is/are
i) Point contact
ii) Alloy junction
iii) Grown junction
A) Only i and ii B) Only ii and iii
C) Only i and iii D) All the above (i, ii and iii)

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40. Which of the following is/are the terminals of a MOSFET ?
 i) Source, Drain, Gate
 ii) Collector, Emitter, Gate
 iii) Source, Drain, Base
 iv) Collector, Emitter, Base
 A) Only i B) Only ii and iii C) Only iii D) Only iv
41. Which of the following is/are come into the thyristor family ?
 i) BJT
 ii) Diode
 iii) SCR
 iv) FET
 A) Only i and ii B) Only iii C) Only iv D) Only ii and iv
42. Which switching device is/are known as double base diode ?
 i) Transistor ii) FET
 iii) SCR iv) UJT
 A) Only i and ii B) Only iii C) Only iv D) Only i and iii
43. Which of the following is/are an example of primary cell ?
 i) Nickel-Cadmium cell
 ii) Dry cell
 iii) Lead acid cell
 iv) Mercury cell
 A) Only i, ii and iii B) Only ii and iv C) Only i, iii and iv D) Only i and ii
44. Capacitance of a capacitor depends upon
 i) Area of plate
 ii) Distance between the plates
 iii) Types of dielectric
 A) Only i and ii B) Only ii and iii
 C) Only i and iii D) All the above (i, ii and iii)
45. The colour code for resistor 47 k Ω 5% tolerance is
 i) Yellow, Violet, Red, Gold
 ii) Yellow, Violet, Orange, Silver
 iii) Yellow, Violet, Orange, Gold
 iv) Yellow, Violet, Red, Silver
 A) Only ii B) Only iv C) Only iii D) Only i

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46. When two capacitors are connected in parallel total capacitance is
i) Decreased
ii) Equal to the capacitance of one capacitor
iii) Equal to the sum of the individual capacitor
iv) Product of two capacitor
A) Only iii B) Only iv C) Only ii D) Only i
47. SI unit of viscosity is
A) Pa/m² B) N/m² C) Pa.s D) m/s²
48. Which part cleans compressed air by trapping solid particles and isolating liquids in the compressed air ?
A) Dryer B) Filter C) Lubricator D) Regulator
49. Pascal's law states that the pressure or intensity of pressure at a point in a static fluid is _____ in all directions.
A) Opposite B) Increases C) Equal D) Decreases
50. Which part of double acting cylinder stops air leakage from cylinder to atmosphere ?
A) Rod end B) Piston seal C) Rod seal D) Piston end
51. Which valve block flow of liquid in one direction and permit free flow in the other direction ?
A) Non-return valve B) Gate valve C) Globe valve D) 4/2 way valve
52. Which pump is functioning similar to the external gear pump except that unlike gears do not directly make contact with each other ?
A) Vane pump B) Lobe pump C) Gear pump D) Piston pump
53. Hydraulic actuator convert the pressure energy of fluid into _____ output to perform useful work.
A) Pneumatic B) Electrical C) Electronic D) Mechanical
54. Directional control valve are classified according to the
A) Direction of flow
B) Number of ports and position
C) Maximum pressure of valve
D) Direction of pressure

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55. A hydraulic pump converts _____ into hydraulic energy.
 A) Thermal energy
 B) Pneumatic energy
 C) Electronic energy
 D) Mechanical energy
56. What is the use of directional control valve in hydraulic system ?
 A) Open or close flow path
 B) Decrease the pressure
 C) Control the valve
 D) Increase the pressure
57. What is the working cycle of compression ignition engine ?
 A) Otto cycle
 B) Diesel cycle
 C) Rankine cycle
 D) Sterling cycle
58. Which is the reason to decrease the volumetric efficiency of an engine ?
 A) High temperature
 B) Low temperature
 C) Excessive back pressure
 D) Less load
59. The cross-sectional area of one cylinder of an engine multiplied by its stroke is called
 A) Combustion volume
 B) Clearance volume
 C) Engine capacity
 D) Swept volume
60. When does a fresh charge escapes from the petrol engine exhaust ?
 A) During valve overlap
 B) During valve lead
 C) During valve open
 D) During valve lag
61. A 'square engine' is an engine having
 A) Cylinders of square cross-section
 B) Bore and stroke equal
 C) Combustion chambers of square section
 D) Bore and stroke unequal
62. Which is used to determine the stroke of an engine ?
 A) Cycle
 B) Throw
 C) Dia of piston
 D) Length of connecting rod
63. The portion below the piston pin boss is called
 A) Crown of the piston
 B) Skirt of the piston
 C) Land of the piston
 D) Ring section of the piston
64. The minor diameter of a camground piston is
 A) along piston pin axis
 B) at 45 degrees to the piston pin axis
 C) at the piston land
 D) at 90 degrees to the piston pin axis

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65. A crankshaft is made off
A) Cast steel
B) Forged steel
C) Forged and heat treated alloy steel
D) Cast and heat treated alloy steel
66. What is ovality of a bore ?
A) Difference in dia measured top to bottom
B) Difference in dia thrust to non thrust side of cylinder
C) Difference in dia measured only at top
D) Difference in dia measured only at bottom
67. Exhaust valve face angle is generally
A) 30 degree
B) 75 degree
C) 60 degree
D) 45 degree
68. What type of bearing fitted in the connecting rod big end ?
A) Needle bearing
B) Ball bearing
C) Taper roller bearing
D) Shell bearing
69. Exhaust valves are opened at a definite degree before BDC in engine valve timing. This is called
A) Lead
B) Lap
C) Overlap
D) Clearance
70. Scavenging is done for the following purpose
A) Fuel consumption
B) Power output
C) Speed
D) Oil pressure
71. What is the effect if thermostat valve is stuck in closed position ?
A) Engine gets over cooling
B) Engine gets over heating
C) Engine does not start
D) Engine does not stop
72. The boiling temperature of the coolant in the cooling system is increased by the use of
A) Atmospheric valve and vacuum valve
B) Inlet and exhaust valve
C) Pressure relief valve and vacuum valve
D) Overflow valve and air valve
73. Percentage of fuel energy lost to the cylinder walls in an automobile engine is approximately
A) 80 per cent
B) 25 per cent
C) 10 per cent
D) 1 per cent

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74. In which types of cooling system the rate of cooling is very low ?
 A) Thermo siphon system
 B) Air cooling system
 C) Forced feed system
 D) Pump circulation system
75. Engine overheating may result due to
 A) Radiator pressure cap stuck closed
 B) Excess coolant in the system
 C) Thermostat stuck open
 D) Broken fan belt
76. What is the cause of water leakage in water pump ?
 A) Worn out bearing
 B) Worn out shaft
 C) Worn out seal
 D) Worn out impeller
77. What is the reason if oil pump does not suck the oil ?
 A) Filter clogged
 B) Relief valve struck
 C) More backlash
 D) Less radial clearance
78. The friction that occurs between the layers of oil in an oil film is called
 A) Solid friction
 B) Viscous friction
 C) Boundary friction
 D) Greasy friction
79. High oil pressure in a lubrication system is caused due to
 A) Incorrect adjustment of relief valve
 B) Low amount of engine oil in sump
 C) Low suction effect in suction pipe
 D) Broken relief valve spring
80. Which part is lubricated by splash lubrication system ?
 A) Timing gears
 B) Main journal
 C) Crank pin
 D) Cylinder wall
81. Which type of the emission control system that blow by gases are feed into the inlet manifold of a running engine ?
 A) Exhaust gas recirculation
 B) Crank case ventilation
 C) Positive crank case ventilation
 D) Catalytic convention
82. Excessive oil consumption may be caused by all of these problems except
 A) Worn rocker arms
 B) Worn valve guides
 C) Worn piston rings
 D) Scored cylinder walls

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83. In a Diesel fuel injection pump, the effective pressure strokes of the plungers are regulated by means of a
A) Fuel pump B) Cam shaft C) Needle valve D) Control rack
84. Which action the spindle only move up and down in feed pump ?
A) Partial action B) Idling action
C) Normal action D) Pumping action
85. Cetane number of a Diesel fuel is measure of
A) Volatility B) Viscosity C) Ignition quality D) Specific gravity
86. Which governor has fitted the control rack with diaphragm ?
A) Mechanical governor B) Pneumatic governor
C) Servo governor D) Centrifugal governor
87. The combustion process in a Diesel cycle happens at
A) Constant pressure B) Constant volume
C) Constant temperature D) Constant entropy
88. What is the purpose of baffles in the fuel tank ?
A) To strengthen the fuel tank
B) To make chambers in the fuel tank
C) To make square and lengthy fuel tank
D) To minimize the slushing of fuel in the tank
89. Which meter indicates the distance travelled by a vehicle ?
A) Ampere meter B) Tachometer C) Odometer D) Speedometer
90. *Limp In* mode is in
A) Parking brake B) Engine check light
C) Gear shift indicator D) Transmission system
91. What is the function of solenoid switch in starting system ?
A) Open and close the circuit between primary and secondary
B) Step down voltage from primary to secondary winding
C) Close the contact between battery and starting motor
D) Shift the lever to engage the plunger

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92. Which type of sensor used to monitor the injection timing and ignition timing of engine ?
A) Crank and cam shaft position sensor B) Throttle position sensor
C) Pressure sensor D) Engine knocking sensor
93. In an alternator the magnetic field is produced in the
A) Stator B) Frame C) Regulator D) Rotor
94. Which gas is filled in the sealed beam head lights ?
A) Oxygen gas B) Nitrogen gas C) Argon gas D) Hydrogen gas
95. Which sensor is used for monitoring the air-fuel ratio ?
A) Exhaust gas oxygen sensor B) Crank shaft position sensor
C) Cam shaft position sensor D) Mass air flow sensor
96. The vertical distance between the centre line of the centrifugal pump and the liquid surface in the pump is called as
A) Dynamic head B) Manometric head
C) Delivery head D) Suction head
97. A centrifugal pump acts as a reverse of
A) Outward radial flow reaction turbine
B) Pelton turbine
C) Inward radial flow reaction turbine
D) Reciprocating pump
98. The fluid coming in the centrifugal pump is accelerating with the help of
A) Throttle B) Impeller C) Nozzle D) Governor
99. Which one of the following parts act as a flame arrester during engine back fire ?
A) Fuel filter B) Muffler C) Air filter D) Oil filter
100. Which type of muffler produces anti noise without restricting exhaust flow ?
A) Baffle type B) Electronic type
C) Reverse flow type D) Straight through type
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Space for Rough Work

