

074/23

Question Booklet Alpha Code

A

Question Booklet Sl. No.

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.

A

074/23

A

-2-

1. Square head in a combination set has one measuring face at 90 degree and another at _____ degree to the rule.
 A) 60 B) 30 C) 90 D) 45

2. Which among the following statement is/are correct about Centre Punch ?
 i. The angle of point is 60 degree.
 ii. The angle of point is 90 degree.
 iii. This punch is used for locating centre of the holes.
 iv. The divider point will get a proper seating in the punch.
 A) Only ii and iii B) Only iv
 C) Only i and iv D) Only i

3. Which formula is used to find drill size for reamer ?
 A) Reamed size – (Under size – Over size)
 B) Reamed size – (Over size – Under size)
 C) Reamed size – (Under size + Over size)
 D) Reamed size + Under size + Over size

4. Name the tool which is used to remove socket from the spindle of drilling machine.
 A) Arbor B) Drift C) Key D) Sleeve

5. Which among the following tool is used for reconditioning of the damaged threads ?
 A) Die nut B) Button die
 C) Half die D) Adjustable screw plate die

6. A single level double groove 'V' block have
 A) Only one 'V' groove and has single slot
 B) One 'V' groove and two slots
 C) Two 'V' grooves on the top and bottom and two slots
 D) Two 'V' grooves on the top and bottom and a single slot

7. Which type of angle plate have 'T' slots ?
 A) Plain solid angle plate B) Swivel type angle plate
 C) Slotted type angle plate D) Box angle plate

074/23

8. Beam compass is also known as
- A) Wing compass
 - B) Spring joint divider
 - C) Trammel
 - D) None of the above options (A, B, C)
9. Curved cut files are available only in
- A) Round shapes
 - B) Flat shapes
 - C) Half round shapes
 - D) Triangular shapes
10. The chisel which is used for separating metals after chain drilling
- A) Web chisel
 - B) Diamond point chisel
 - C) Flat chisel
 - D) Cross-cut chisel
11. Which part of the inside micrometer consist sleeve and thimble ?
- A) Micrometer head
 - B) Spacing collar
 - C) Handle
 - D) Extension rod
12. A dial test indicator is a _____ measuring instrument.
- A) Precision and direct
 - B) Non Precision and indirect
 - C) Precision and indirect
 - D) Non Precision and direct
13. Frame of outside micrometer is made of
- i. Malleable cast iron.
 - ii. Drop-forged steel.
 - iii. Aluminium.
 - iv. Low carbon steel.
- A) Only iii
 - B) Only iv
 - C) Only iii and iv
 - D) None of the above
14. Which type of slip gauges are used for inspection purpose ?
- A) Grade 'II' accuracy
 - B) Grade 'I' accuracy
 - C) Grade '0' accuracy
 - D) Grade '00' accuracy

A

15. Which among the following is an indirect angular measuring instrument ?
- | | |
|-----------------------------|--------------------|
| A) Bevel protractor | B) Bevel gauge |
| C) Vernier bevel protractor | D) Combination set |
16. Try squares are specified according to the
- | | |
|--------------------|--------------------|
| A) Length of blade | B) Length of stock |
| C) Width of blade | D) Width of stock |
17. Least count of a Vernier bevel protractor is
- | | |
|--------------------------------|--------------------------------|
| A) $1\text{MSD} - 1\text{VSD}$ | B) $2\text{MSD} - 1\text{VSD}$ |
| C) $2\text{VSD} - 1\text{MSD}$ | D) $2\text{MSD} + 1\text{VSD}$ |
18. Which micrometer is used to measure the diameter of holes ?
- | | |
|-----------------------|-----------------------|
| A) Outside micrometer | B) Vernier micrometer |
| C) Depth micrometer | D) Inside micrometer |
19. Which part of a vernier caliper is used to set the vernier slide in any position on the beam scale ?
- | | |
|----------------|------------------|
| A) Depth bar | B) Movable jaw |
| C) Thumb lever | D) Locking screw |
20. Accuracy of a vernier micrometer is
- | | |
|------------|-------------|
| A) 0.01 mm | B) 0.02 mm |
| C) 0.1 mm | D) 0.001 mm |
21. Which of the following statement is/are correct about rivets ?
1. Riveting is a temporary fastening method.
 2. Rivets are specified by their length, material, size and shape of head.
 3. Rivets are made of ductile material like low carbon steel, brass, aluminium and their alloys.
- | |
|----------------------------------|
| A) Only 1 and 2 |
| B) Only 2 and 3 |
| C) Only 1 and 3 |
| D) All of the above (1, 2 and 3) |

074/23

22. Which tool is used for bringing the sheet metal closely together after inserting the rivets in the hole ?
- A) Dolly
B) Rivet snap
C) Rivet set
D) Drift
23. What is the name of operation of closing down the edges of the plates and heads of the rivets to form a metal to metal joint ?
- A) Hemming
B) Fullering
C) Caulking
D) Spinning
24. What are the important criteria for selecting a flux ?
- A) Working temperature of solder and proportion of the solder
B) Working temperature of the solder, soldering process and material to be joined
C) Soldering process and working temperature of the solder
D) Material to be joined and soldering process
25. What is the taper ratio of a key way ?
- A) 1 : 20
B) 1 : 50
C) 1 : 100
D) 1 : 25
26. Which type of key is used when very high torque of impact type is to be transmitted in both directions of rotation ?
- A) Tangential key
B) Wood ruff key
C) Jib-head key
D) Hollow saddle key
27. Which type of screws are used to permit pulleys from slipping on shafts, positioning and holding collars in place on both shafts and holding shafts in place in assemblies ?
- A) Machine screws
B) Cap screws
C) Studs
D) Set screws
28. What is the use of slots provided in the castle nut ?
- A) Provide space for lubrication
B) Provide space for adjustment
C) Provide space for thermal expansion
D) Provide space for fixing split pin

A

29. Which type of nut protect the bolt end thread from damages ?
A) Castle nut
B) Cap nut
C) Swan nut
D) Hexagonal nut
30. Which type of machine screws are used in heavy duty assembly work ?
A) Hexagonal screw
B) Cheese head screw
C) Pan head screw
D) Round head screw
31. What is the use of the centre screw provided in the die stock ?
A) To adjust the diameter of the external thread
B) To adjust the internal diameter of the internal thread
C) To adjust the depth of cut
D) To tighten the die
32. Which property of oil that controls the flow in hydraulic system ?
A) Pour point
B) Oilness
C) Flash point
D) Viscosity
33. Which type of tap wrench is more useful to work in restricted place and is used with single hand only ?
A) Solid type tap wrench
B) Box type tap wrench
C) Bar type tap wrench
D) T-Handle tap wrench
34. Which device is used for converting pressure energy of compressed air to mechanical energy in pneumatics ?
A) Pneumatic actuators
B) Pneumatic valves
C) Filters
D) Pressure regulators
35. What is the taper angle of commonly used intermediate (second) tap ?
A) 5 Degree
B) 15 Degree
C) 10 Degree
D) 20 Degree
36. What is the term used for calling interlocked air bubbles and pockets in the hydraulic pipe line and components ?
A) Vapour pressure
B) Static pressure
C) Cavitation
D) Vacuum pressure

074/23

37. Which of the following tap is used to start the thread while tapping ?
- A) Taper tap
 - B) Bottoming tap
 - C) Plug tap
 - D) Intermediate tap
38. What is the major cause (more than 90%) of failure in a hydraulic system ?
- A) Leak of valve
 - B) Pump
 - C) Tubing s in hydraulic system
 - D) Contamination of hydraulic-fluid
39. Name the tool used for cutting external thread in work piece.
- A) Die stock
 - B) Hand tap
 - C) Die
 - D) Hand reamer
40. Which of the following type of filter is more suitable to remove ferrous material from oil in hydraulic system ?
- A) Absorbent filter
 - B) Magnetic filter
 - C) Offline filter
 - D) Mechanical filter
41. What is the formula of calculating blank size for external threading ?
- A) Blank size = Major diameter – 2 × depth of thread
 - B) Blank size = Major diameter – Pitch
 - C) Blank size = Major diameter – 1/number of threads per inch
 - D) Blank size = Thread size – 0.1 × Pitch of the thread
42. Which of the following valve protect against excessive pressure in hydraulic system ?
- A) Check valve
 - B) Shuttle valve
 - C) Relief valve
 - D) Globe valve
43. Which type of tool is used for chasing or reconditioning the damaged threads ?
- A) Circular die
 - B) Half die
 - C) Adjustable screw plate die
 - D) Die nut
44. Name the branch of science under that you study the properties and application of air.
- A) Hydraulic system
 - B) Pneumatic system
 - C) Mechanical system
 - D) Electrical system

45. What is the rake angle of cutting teeth in a normal type machine tap ?
A) 12 Degree B) 4 Degree
C) 20 Degree D) 2 Degree
46. What is the volumetric efficiency of a piston type motor ?
A) 85% B) 50% C) 75% D) 95%
47. Which material is used for making hand taps ?
A) High speed steel B) Medium carbon steel
C) Mild steel D) Brass
48. Name the law which states that the pressure exerted on liquid is transmitted equally in all the directions.
A) Boyle's law B) Pascal's law
C) Archimedes principle D) Charles law
49. What is the energy conversion takes place in hydraulic pump ?
A) Mechanical energy to hydraulic energy
B) Thermal energy to hydraulic energy
C) Chemical energy to hydraulic energy
D) Gravitational energy to hydraulic energy
50. Which type of tap is used to finish the threads of a blind hole to the correct depth ?
A) Taper tap B) Intermediate tap
C) Plug tap D) Second tap
51. Major overhauling of marine diesel engine carried out
A) 6000 hours B) 5000 hours C) 4000 hours D) 2000 hours
52. In which type of cooling system of marine diesel engine Keel cooler is used ?
A) Direct cooling B) Indirect cooling
C) Thermosyphon cooling system D) Cooling system used by coolant
53. The intake and exhaust valves can be arranged various ways in engines. The most common arrangement is
A) L – Head B) F – Head C) T – Head D) I – Head

074/23

54. Four stroke turbo charged engines having number of cylinder 4 and above will require exhaust
- A) Cooling B) Heating C) Mapping D) Grouping
55. Which one of the following method adopted commonly for starting the Marine Diesel engine ?
- A) Kick starting B) Cartridge type starting
C) Compressed air D) Compressed oil
56. Which instrument is used to find the drop of the shaft in relation to its own housing in static condition ?
- A) Bore gauge B) Bridge gauge
C) Poker gauge D) Dammel gauge
57. Which type of starting method in marine diesel engines, starting valves are used ?
- A) Air starting B) Electrical starting
C) Hand starting D) Rope starting
58. For finding the engine torque, which instrument is used ?
- A) Ohm meter B) Digital multimeter
C) Dynamo meter D) Watt meter
59. In case of air cooled engines cylinder heads are provided with pre-casted integral parts known as
- A) Inlet manifold B) Exhaust manifold
C) Fins D) Water jackets
60. The test carried out initially on the engine before it is operated for a long period, is known as
- A) Official trial B) Mooring trials
C) Preliminary trials D) Running trial

A

61. A periodic variation in the speed of a governed engine due to inertia or friction in the mechanism is called
- A) Engine hunts B) Engine knocks
C) Engine torque D) Engine rpm
62. The exhaust manifolds are designed to avoid overlapping of exhaust strokes as far as possible, this keep the back pressure to a
- A) Maximum B) Same
C) Minimum D) Adequate
63. To install the piston in the cylinder, compress the ring in their groove so that they will enter easily in the cylinder, it is done by
- A) Ring expander B) Ring grinder
C) Ring compressor D) Ring groover
64. The shell diameter is made slightly greater than the diameter of the connecting rod Bore is known as
- A) Bearing Crush B) Bearing Spread
C) Bearing Conformability D) Bearing Metal
65. Use of plastigauge is to check
- A) Valve clearance B) Piston clearance
C) Crankshaft end clearance D) Oil clearance
66. In petrol injection system, the fuel injector stays open during the intake cycle, this is known as
- A) Injector pulse width B) Injection timing
C) Delay period D) Port injection
67. What is the cause of Valve seat recession ?
- A) Wearing of valve seat B) Increase the clearance
C) Wearing of valve stem D) Decrease the clearance
68. Which action would take, when a cylinder wall has become badly scored ?
- A) Regrind the cylinder wall and fit with new piston
B) Regrind the cylinder wall and fit with old piston
C) Refit old piston with new piston rings
D) Refit new piston with new piston rings

074/23

69. Sensor senses the information in the form of physical or chemical variables and sends that information to the ECM in the form of
- A) Pulse
 - B) Current
 - C) Frequency
 - D) Voltage
70. The two important properties of the cylinder head gasket are
- A) Tenacity and compressibility
 - B) Compressibility and flexibility
 - C) Heat resistance and expansion on resistance
 - D) Compressibility and resistivity
71. A square engine is an engine having
- A) Cylinders of square cross section
 - B) Combustion chambers of square section
 - C) Bore and stroke equal
 - D) Bore is less than stroke
72. A set of operations performed in sequence by the motion of the piston in an Engine to produce Power is called
- A) Stroke
 - B) Horse Power
 - C) Cycle
 - D) Compression ratio
73. Who is the inventor of C.I. engine ?
- A) Nicholas Otto
 - B) Rudolph diesel
 - C) Benz
 - D) Perkins
74. The oil pan in an Engine may be made of
- A) Steel or Aluminium
 - B) Cast Iron or Brass
 - C) Cast Iron or Zinc
 - D) Cast Iron or Copper
75. The distance between the centre of crankpin to the centre of main journal is called
- A) Cycle
 - B) Stroke
 - C) Bore
 - D) Throw

A

76. Most high-speed C.I. Engines operates on following cycle
 A) Dual combustion cycle B) Reverse Carnot cycle
 C) Otto cycle D) Diesel cycle
77. The ratio of the weight of the induced charge and the charge needed to completely fill at atmospheric pressure and normal temperature in the swept volume
 A) Mechanical efficiency B) Volumetric efficiency
 C) Thermal efficiency D) Brake efficiency
78. Compression ratio of an IC Engine refers to
 A) $C_R = \frac{V_s + V_c}{V_c}$ B) $C_R = \frac{V_c + V_c}{V_s}$
 C) $\frac{V_s + V_s}{V_c}$ D) $\frac{V_c - V_s}{V_c}$
79. What is the speed ratio of Camshaft to Crankshaft ?
 A) Half B) Equal C) Double D) Triple
80. Which of the following is defined as the escape of burned gases from the combustion chamber past the pistons in to the crankcase ?
 A) Passed gas B) Gas loss C) Blow by D) By pass
81. The negative plate of a Lead acid battery is
 A) PbO_2 B) H_2SO_4 C) $PbSO_4$ D) Pb
82. Kilowatt is the unit of
 A) Energy B) Power C) Force D) Current
83. According to Ohm's Law
 A) $V = IR$ B) $I = R/V$ C) $V = R/I$ D) $R = I/V$
84. Cut out relay is not required for
 A) Dynamo B) Alternator C) Regulator D) Diode
85. The specific gravity of fully charged battery is
 A) 1.100 B) 1.200 C) 1.280 D) 1.170

074/23

86. Growler test is conducted on
- A) Starting Motor
 - B) Cut out Relay
 - C) Battery
 - D) Flasher unit
87. Automotive starting motors are
- A) Series wound
 - B) Series shunt wound
 - C) Shunt wound
 - D) Both A) and B)
88. In a D.C. Generator magnetic field is produced in the
- A) Armature
 - B) Commutator
 - C) Carbon Brushes
 - D) Stator
89. In a starter motor the field windings are wound around
- A) Armature
 - B) Commutator
 - C) Brush
 - D) Pole shoes
90. What is the energy conversion of battery during discharge ?
- A) Electrical Energy into Heat Energy
 - B) Chemical Energy into Electrical Energy
 - C) Electrical Energy into Mechanical Energy
 - D) Electrical Energy into Chemical Energy
91. Flow of Electron is called
- A) Current
 - B) Power
 - C) Voltage
 - D) Resistance
92. For the Diesel Engine the type of Governing used is
- A) Quality Governing
 - B) Bit and miss Governing
 - C) Quantity Governing
 - D) None of the above
93. What is identified the antiknock quality of Diesel Fuel ?
- A) SAE number
 - B) Cetane number
 - C) Octane number
 - D) API Gravity

A

94. The venturi in the carburettor causes the
- A) Increases of Air velocity
 - B) Decrease of Air velocity
 - C) Decrease of fuel flow
 - D) Decrease of manifold vacuum
95. The example of variable venturi type carburettor is the
- A) Solex Carburettor
 - B) Zenith Carburettor
 - C) Carter Carburettor
 - D) Su Carburettor
96. Exhaust valve usually starts opening
- A) At BDC
 - B) At TDC
 - C) Before TDC
 - D) Before BDC
97. CRDI means
- A) Common Rod Direct Injection
 - B) Continuously Rotating Direct Injection
 - C) Car Rear Double Injection
 - D) Common Rail Direct Injection
98. Which is a greenhouse effect gas ?
- A) O_2
 - B) CO
 - C) CO_2
 - D) N_2
99. What is the purpose of EGR valve ?
- A) Reduce NO_x
 - B) Reduce CO
 - C) Reduce CO_2
 - D) Reduce SO_2
100. What is the name of the Governor in which the control rack connected with counter weight floating lever ?
- A) Mechanical Governor
 - B) Pneumatic Governor
 - C) Hydraulic Governor
 - D) Servo Governor
-

074/23

Space for Rough Work

