

066/2022

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total No. of Questions : 100

Maximum : 100 Marks

Time : 1 Hour 30 Minutes

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 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. Blank sheets of paper is attached to the question booklet. These 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.

066/2022-A



066/2022

Total Marks : 100 Marks

Time : 1 hour and 30 minutes

1. Which material is used for making a leg vice ?
(A) Chilled cast iron (B) Mild steel
(C) Stainless Steel (D) Grey cast Iron

2. Which one of the following is not the other name of Jenny Calliper ?
(A) Bent Leg Calliper (B) Odd Leg Calliper
(C) Hermaphrodite Calliper (D) Leg and point calliper

3. Select the right statement/ statements about knife edge file ?
 - i. It has the cross section of a sharp triangle
 - ii. It is used for filing narrow grooves above 10 degree.
 - iii. It is available only in single cut(A) i & iii only (B) ii & iii only
(C) i & ii only (D) All the above (i, ii & iii)

4. Which of the following is a direct angular measuring instrument ?
(A) Bevel Gauge (B) Universal Bevel Gauge
(C) Steel Rule (D) Bevel Protractor

5. Which one is not a factor in the specification of Hack saw blades ?
(A) Length (B) Pitch
(C) Type of setting (D) Type of material

6. Identify the wrong statement from the following about Hand reamers ?
(A) They have a long taper lead
(B) Shank has Morse taper
(C) Held in tap wrench for reaming
(D) Most of them have uneven spacing of teeth

7. The natural abrasive used in the manufacture of grinding wheel is _____ ?
(A) Emery (B) Aluminium Oxide
(C) Silicon Carbide (D) Boron Carbide

8. Which drilling machine is used for performing operations such as drilling, reaming and tapping many holes in a specific unit at one time ?
- Pillar Drilling Machine
 - Gang Drilling Machine
 - Multi Spindle Head Drilling Machine
 - Radial Drilling Machine
9. Identify the correct statement/statements from the following about counter sinking ?
- It is used to deburr a hole after drilling.
 - It is done to accommodate countersink rivet heads.
 - A drilled hole can be enlarged by this process.
 - It is helpful in chamfering the ends of a hole for thread cutting.
- i, ii & iii Only
 - i, ii & iv Only
 - ii, iii & iv Only
 - All the above (i, ii, iii & iv)
10. Guide plate is a part of _____ Die ?
- Circular Split Die
 - Half die
 - Adjustable Screw Plate Die
 - Die Nut
11. In an outside micrometer the datum line and graduations are marked on _____ ?
- Thimble
 - Barrel
 - Spindle
 - Frame
12. Which of the following statements are true about a Vernier Calliper ?
- It is a precision measuring instrument.
 - Fixed jaws of a Vernier Callipers are part of the Vernier slide.
 - The main scale graduations are marked on the beam.
- i & ii Only
 - ii & iii Only
 - i & iii Only
 - All the above (i, ii & iii)
13. Which instrument is used with Vernier height gauge to check the location of a hole ?
- Surface gauge
 - Inside micrometer
 - Dial indicator
 - Depth gauge
14. Identify the correct statement/statements from the following about the advantages of using gauges ?
- Faster checking of product
 - Less dependence on operator skill
 - Economical when compared to measuring instruments
- i & ii Only
 - ii & iii Only
 - i & iii Only
 - All the above (i, ii & iii)

15. Which surface finishing operation is done on the opposite measuring faces of slip gauge blocks to make it flat and parallel ?
- (A) Grinding (B) Lapping
(C) Electroplating (D) Machining
16. Pick out the wrong statement/statements about the purpose of holes drilled across the body of a sine bar ?
- i. Reduce weight
ii. Facilitate clamping on angle plate
iii. Insert round pin for measuring
- (A) i & ii Only (B) All the above (i, ii & iii)
(C) iii Only (D) i Only
17. In the tolerance size, '20H7', the number 7 denotes _____.
- (A) Grade of tolerance (B) Basic size
(C) Fundamental deviation (D) Actual size
18. Which key positions itself in the key way to accommodate the hub to have an easy assembling ?
- (A) Feather Key (B) Jib Key
(C) Hollow Saddle Key (D) Woodruff Key
19. Name the rivet used in light assembly, where riveting is done by hammering ?
- (A) Countersink head (B) Conical head
(C) Pan head (D) Bifurcated
20. _____ fixture is used for parts that require machining on evenly spaced surfaces ?
- (A) Indexing Fixture (B) Plate Fixture
(C) Angle Plate Fixture (D) Vice jaw Fixture
21. Identify the wrong statement/ statements about the refractory material "Dinas Bricks" ?
- i. They are made from ground quartz
ii. They are also called quartz bricks.
iii. They can withstand sudden temperature changes.
- (A) i Only (B) iii Only
(C) i & ii Only (D) All the above (i, ii & iii)
22. Which of the following part of an anvil is used for bending and rounding operations ?
- (A) Beak (B) Face
(C) Hardie Hole (D) Round Hole

23. The forging operation in which, the length of a piece of metal is reduced and its cross sectional area is increased is known as _____ ?
(A) Drawing out (B) Bending
(C) Upsetting (D) Twisting
24. The cutting angle of a straight snip is _____ degree.
(A) 89 Degree (B) 67 Degree
(C) 87 Degree (D) 90 Degree
25. Which stake is used for turning up flanges on sheet metal disc ?
(A) Half moon stake (B) Hatchet stake
(C) Round bottom stake (D) Funnel stake
26. Pick out the correct statement/statements about the process of hemming in sheet metal work ?
i. The edges are folded to 180 degree.
ii. It will make the edges sharp.
iii. The stiffness of the edges can be increased.
(A) i & ii only
(B) i & iii only
(C) ii & iii only
(D) All the above (i, ii & iii)
27. What is the gas storage capacity of oxygen cylinder in oxyacetylene welding ?
(A) 5 m³ (B) 10 m³
(C) 7 m³ (D) 12 m³
28. Which one of the gas flame combination used in gas welding has the lowest flame temperature ?
(A) Oxy-acetylene (B) Oxy-hydrogen
(C) Oxy-LPG (D) Oxy-coal gas
29. Which of the following welding defect is the result of a very narrow edge preparation ?
(A) Under cut (B) Porosity
(C) Incomplete penetration (D) Slag inclusion
30. Which of the following non destructive testing method for testing welded joints is suitable only for ferrous metals ?
(A) Visual Test (B) Magnetic Test
(C) Dye Penetrant Test (D) Radiographic Test

31. In diesel cycle engine the combustion takes place at
 (A) Constant temperature (B) Constant volume
 (C) Constant pressure (D) Constant pressure & temperature
32. The dwell angle on a three cylinder engine compared to four-cylinder engine is
 (A) More (B) Less
 (C) Same (D) May be more or less
33. In a four stroke engine, in which of the following condition its stroke is increased ?
 (A) Connecting rod is lengthened (B) Piston is shortened
 (C) Crank throw increased (D) Crank throw decreased
34. A four cylinder engine has a capacity of 2.8 Liters and its clearance volume in one cylinder is 100 cm^3 , what is its compression ratio ?
 (A) 7:1 (B) 8:1
 (C) 10:1 (D) 14:1
35. The fluctuation of engine speed during cycle of operation depends upon
 (A) Power output (B) Speed of fly wheel
 (C) Mass of crank shaft (D) Mass of fly wheel
36. The distance between axis of the piston pin and the top of the piston crown is called
 (A) Throw height (B) Compression height
 (C) Height of piston (D) Ring land height
37. Which of the following is NOT a type of piston pin fastening method
 (A) Semi floating (B) Fully floating
 (C) Three quarter floating (D) Set screw type
38. The piston skirt clearance at room temperature is about
 (A) 0.008 mm (B) 0.08 mm
 (C) 0.40 mm (D) 0.04 mm
39. The cross sectional area of one cylinder of an engine is multiplied by its stroke is known as
 (A) Stroke volume (B) Piston displacement
 (C) Swept volume (D) All of these
40. The maximum permissible ovality in an engine cylinder is usually
 (A) 0.001 mm (B) 0.01 mm
 (C) 0.10 mm (D) 0.05 mm

41. What is the use of bourdon gauge ?
 (A) To measure volume (B) To measure pressure
 (C) To measure temperature (D) All of these
42. Which of the following chemical substance are added to lubricating oil as anti-forming additives ?
 (A) Polyisobutane
 (B) Polyalyenyl succinimides
 (C) Polyorganosiloxanes
 (D) Thiophosphoric acid
43. The bellows type thermostat valve fitted in cooling system is filled with _____.
 (A) Ethyl alcohol (B) Ethylene glycol
 (C) Glycerine (D) Ethyl
44. Which of the following is NOT an example of anti freeze agent used in engine coolant ?
 (A) Ethylene glycol (B) Chloromethane
 (C) Ethyl alcohol (D) Calcium chloride
45. The maximum permissible resistance to flow in an engine oil filter is about _____.
 (A) 0.5 bar (B) 1 bar
 (C) 2 bars (D) 4 bars
46. The vacuum valve inside the radiator pressure cap is usually set to operate when the vacuum exceeds about
 (A) 2 kPa (B) 3 kPa
 (C) 5 kPa (D) 10 kPa
47. When two metallic surfaces move over each other under direct contact the friction produced is called
 (A) Viscous friction (B) Direct friction
 (C) Boundary friction (D) Solid friction
48. The minimum temperature at which oil gives off sufficient vapour to form combustible mixture with air is known as
 (A) Flash point (B) Fire point
 (C) Combustion point (D) Pour point
49. Which lubrication system uses a separate oil tank ?
 (A) Wet sump lubrication (B) Splash lubrication
 (C) Petroil lubrication (D) Dry sump lubrication
50. Which of the following is NOT a component of an air intake system ?
 (A) Turbo charger (B) Air Compressor
 (C) Inter cooler (D) Intake manifold

51. In emission control technique EGR system controls which emission ?
(A) Nitrous oxide (B) Carbon monoxide
(C) Hydrocarbon (D) All of these
52. The measurement of fuel delivered by each plunger with the control rod in a fixed position and its comparison is called _____.
(A) Metering (B) Calibration
(C) Phasing (D) Governing
53. The opening pressure of hole type nozzles varies from
(A) 5-10 MPa (B) 13-26 MPa
(C) 17-34 MPa (D) 23-46 MPa
54. Which type nozzle has an advantage of preventing deposit of carbon in the spray hole ?
(A) Single hole type (B) Multi hole type
(C) Long stem nozzle (D) Pintle type
55. How much maximum pressure is developed by high pressure diesel pump in CRDI engine ?
(A) 2000 Kg/cm² (B) 1600 Kg/cm²
(C) 1200 Kg/cm² (D) 700 Kg/cm²
56. In a diesel engine the duration between the time of injection and time of ignition is called _____
(A) Injection lag (B) Ignition lag
(C) Delay period (D) Period of injection
57. How many fuel chambers are in HEUI ?
(A) One (B) Two
(C) Three (D) Four
58. Which type of exhaust emission control requires Diesel exhaust fluid ?
(A) EGR (B) EVAP
(C) DPF (D) SCR
59. How do we achieve near zero emission diesel engines ?
(A) Combo of PCV and EGR
(B) Combo of EGR and SCR
(C) Combo of PCV and 3 way catalytic converter
(D) Combo of DPF and EGR
60. In three way catalytic converter which acts as reduction catalyst for NOx reduction ?
(A) Palladium (B) Platinum
(C) Rhodium (D) Cerium

61. Clutch plate is located in between _____.
- (A) Flywheel and Gearbox (B) Engine and Gearbox
(C) Flywheel and Pressure plate (D) Flywheel and Crankshaft
62. On which system the slave cylinder is installed ?
- (A) Hydraulic brake (B) Hydraulic power steering
(C) Clutch operation (D) Automatic transmission
63. Which type of synchroniser unit is mostly used to engage the IV gear from III and vice versa ?
- (A) Baulk type (B) Baulk ring type
(C) Multi and double cone type (D) Porche type
64. On which device the lock up clutch mechanism is installed ?
- (A) Synchromesh gearbox (B) Fluid flywheel
(C) Torque converter (D) Multi plate clutch
65. _____ of dual mass fly wheel isolate the fly wheel mass system of the engine.
- (A) Clutch (B) Vibration damper
(C) Crank shaft (D) Primary flywheel
66. In a Hotchkiss drive, the rear end driving torque is taken up by
- (A) Rear shock absorber (B) Rear Axle casing
(C) Rear leaf spring (D) Rear Universal joint
67. In a Differential unit, which part does not revolve when the vehicle is in straight drive ?
- (A) Planetary gear (B) Crown wheel
(C) Cage unit (D) Pinion gear
68. Which rear axle shaft support makes it possible to take off the axle shaft without removing the wheels ?
- (A) Semi floating axle (B) Full floating axle
(C) Three quarter floating axle (D) Quarter floating axle

69. Hooke's joint uses _____ bearing to support the cross in the yoke.
(A) Ball (B) Roller
(C) Needle (D) Bush
70. In a Torque converter, torque multiplication is achieved by _____.
(A) Impeller (B) Stator
(C) Freewheel Unit (D) Turbine
71. The weight of vehicle components between the suspension and the road surface is called _____
(A) Unsprung weight (B) Sprung weight
(C) Vehicle weight (D) Axle weight
72. The purpose of Shackle in a Suspension system is to _____.
(A) Control side torque
(B) Absorb road shock
(C) Control rear torque
(D) Allow spring length to change
73. The tilt of the front wheel from the vertical is called _____.
(A) Castor angle (B) Camber angle
(C) King pin inclination (D) Toe - in
74. Which type of steering gear is used in Maruti 800 cars ?
(A) Worm and Sector type
(B) Recirculating ball type
(C) Rack and Pinion type
(D) Worm and Roller type
75. The ratio of Tyre section height and Tyre section width is known as _____.
(A) Height ratio (B) Width ratio
(C) Tyre ratio (D) Aspect ratio

76. The bead of the tyre rest on the _____.
- (A) Wheel hub (B) Wheel Rim
(C) Disc (D) Tyre shoulder
77. On releasing the disc brake, which part act as a return spring and retracts the piston and the friction pads away from the disc ?
- (A) Callipers (B) Revolving Disc
(C) Rubber Sealing ring (D) Pedal return spring
78. The purpose of brake proportioning valves in the braking system is _____.
- (A) Increase braking force
(B) Reduces brake pedal effort
(C) Prevent leakage of fluid
(D) Provide balanced braking
79. In Air brake system, the brake pedal is connected to _____.
- (A) Unloader valve
(B) Brake valve
(C) System Protection valve
(D) Brake chamber
80. Which type of wheel cylinder helps to apply different pressure on each brake shoe ?
- (A) Single Piston wheel cylinder
(B) Double piston with straight bore
(C) Double Piston with step bore
(D) Baffle type piston wheel cylinder
81. _____ is the protective device layer over the insulated cable.
- (A) PVC insulation (B) Crimping
(C) Circuit breaker (D) Shielding
82. The ability to store energy in the form of electric charge is called _____.
- (A) Capacitance (B) Resistance
(C) Electric Current (D) Inductance

83. In fully charged condition, the active material of positive plate in a lead acid battery is _____
- (A) Spongy lead (B) Lead sulphate
(C) Lead peroxide (D) Reel lead
84. _____ is a device used to perform a specific gravity test.
- (A) Hygrometer (B) Hydrometer
(C) Ammeter (D) Cell tester
85. How many windings are provided in a solenoid switch ?
- (A) 2 (B) 3
(C) 4 (D) 1
86. Which device is used to maintain the constant voltage in an Alternator charging circuit ?
- (A) Rectifier assembly (B) Current regulator
(C) Voltage regulator (D) Cut-out Relay
87. Which device is used with slip rings and brushes ?
- (A) Alternator (B) Dynamo
(C) Starting motor (D) Cut out relay
88. Which bearing is mounted on the brush end housing of the Alternator ?
- (A) Ball bearing (B) Roller bearing
(C) Needle bearing (D) Bush bearing
89. If starter spins, but does not engage flywheel, what is the reason for this trouble ?
- (A) Loose or poor connection
(B) Defective starter switch
(C) Bendix pinion stuck on armature shaft
(D) Defective brushes
90. Which is the internal short circuit checking device of the Armature ?
- (A) Multimeter (B) Voltmeter
(C) Ohm meter (D) Growler

91. The operation performed to open up any land with a view to prepare seed bed for growing crops is known as _____.
- (A) Secondary tillage (B) Primary tillage
(C) Zero tillage (D) Conservation tillage
92. Which part of mould board plough invert the furrow slice to cover threshes ?
- (A) Mould board (B) Land side
(C) Cross shaft (D) Plough bottom
93. What is the purpose of hammer mill ?
- (A) Digging out ground nut
(B) Removing the weed
(C) Cutting straw or hay
(D) Reduce the size of soiled materials
94. Which of the following agriculture implement used for preparing seed bed in a single pass both in dry and wet land conditions ?
- (A) Harvester (B) Ditcher
(C) Rotavator (D) Scraper
95. Which agriculture implement combines stubble mulching and seed drilling into one machine ?
- (A) Hand seed drill (B) Happy seeder
(C) Ditcher (D) Post hole digger
96. Which tilling method can be applied to irregular field ?
- (A) Circular travel tilling method (B) Alternate tilling method
(C) Return tilling method (D) All of the three
97. The sprayers operated by IC engines or electric motors are called as _____.
- (A) Automizer (B) Power sprayer
(C) Trailed type sprayer (D) All the three
98. What are the two adjustments for proper functioning of reaper ?
- (A) Clearance & allowance (B) Alignment & clearance
(C) Registration & allowance (D) Registration & alignment
99. In combine harvester, the straw walkers are mounted on _____.
- (A) Camshaft (B) Crankshaft
(C) Clutch shaft (D) Cutter bar
100. What is the function of auger in the cutting system of combine harvester ?
- (A) Pull the cut crop to the middle of through
(B) Carry the empty straw to the floor
(C) Collect the chaff mixture
(D) Takes the crop from cutter bar

SPACE FOR ROUGH WORK

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