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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.

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1. Which statement is wrong ?
  - i. Helmet is a head protection equipment.
  - ii. Apron is a hand protection equipment.
  - iii. Face shield is help to protect face from UV rays.
  - iv. Ear plug to protect from high noise level.

A) i only   B) ii only  
C) both i and ii   D) both i and iv
2. Maintenance carried out after machine stops due to some fault is called  

A) Regular maintenance   B) Preventive maintenance  
C) Periodic maintenance   D) Breakdown maintenance
3. Which statement is correct ?
  - i. Starving is the process of removing fuel from a fire.
  - ii. Smothering is the process of isolate the fire from Oxygen.
  - iii. Cooling is the process of reduce temperature in a fire.

A) all of these i, ii and iii   B) both i and ii  
C) i only   D) iii only
4. Which type locking device is used in Fully floating type Piston and Connecting rod assembly ?  

A) External Circlip   B) Woodruff key  
C) Internal Circlip   D) Split pin
5. Which statement is correct ?
  - i. Morse taper is related to taper shank drill bit.
  - ii. The point angle of a standard drill bit is  $189^\circ$ .
  - iii. Reamer is a multi point cutting tool.
  - iv. Screwdriver shank is made of Mild steel.

A) i only   B) both i and iii  
C) both i and iv   D) both ii and iii
6. Which type Chisel is used to break metal after chain drilling ?  

A) Web chisel   B) Cross cut chisel  
C) Flat chisel   D) Half round chisel
7. Which statement is wrong ?
  - i. In a vernier caliper main scale graduations are marked on beam.
  - ii. The accuracy of outside micrometer is 0.01 mm.
  - iii. Depth bar is the part of inside micrometer.
  - iv. Jenny caliper is a marking tool.

A) both i and ii   B) both i and iii  
C) iv only   D) iii only

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8. Which tool is used to make internal thread ?  
A) Tap and wrench  
B) Die and die stock  
C) Reamer  
D) Lapping plate
9. Which statement is wrong ?  
i. 2 stroke engine makes power every  $360^\circ$  of rotation.  
ii. 4 stroke engine makes power every  $240^\circ$  of rotation.  
iii. Glow plug is related to MPFI engine.  
iv. 4 cylinder diesel engine has 12 V electrical system.  
A) i only  
B) both ii and iii  
C) both i and iv  
D) iii only
10. Which type valve is used in a 4 stroke diesel engine ?  
A) Sleeve valve  
B) Reed valve  
C) Poppet valve  
D) Rotary valve
11. The distance between TDC and BDC is called  
A) Bore  
B) Swept volume  
C) Stroke  
D) Crank radius
12. Which statement is correct ?  
i. The oil pressure gauge indicates the actual oil pressure developed in the oil gallery.  
ii. The oil pressure gauge indicates the actual oil pressure developed in the oil filter.  
iii. The oil pressure gauge indicates the actual oil pressure developed in the oil sump.  
iv. The oil pressure gauge indicates the actual oil pressure developed in the oil cooler.  
A) i only  
B) ii only  
C) both i and iv  
D) both ii and iii
13. Which is related to a 4 stroke diesel engine ?  
A) Intake and Exhaust port  
B) Transfer port  
C) Reed valve  
D) Overhead camshaft
14. Crush and spread is related to  
A) Roller bearing  
B) Bush bearing  
C) Shell bearing  
D) Needle bearing

A

15. The mass of air required to burn a unit mass of fuel with no excess of oxygen or fuel left over is known as  
 A) Specific heat  
 B) Stoichiometric ratio  
 C) Volumetric efficiency  
 D) Thermal efficiency
16. Catalytic convertor is the part of  
 A) Evaporative emission  
 B) Turbo charging  
 C) Fuel tank emission  
 D) Exhaust emission
17. The unit of engine torque is mentioned in  
 A)  $\text{cm}^3$   
 B) Nm  
 C)  $\text{M}^3$   
 D) KW
18. Which statement is correct ?  
 i. Flywheel is mounted on engine Crankshaft.  
 ii. Connecting rod big end bearings are shell bearings.  
 iii. Piston rings are made of Aluminium alloy.  
 iv. The ratio of Crankshaft and Camshaft is 1 : 2.  
 A) both i and ii  
 B) both ii and iii  
 C) i only  
 D) all of these i, ii, iii and iv
19. The piston has a extra groove between piston head and top ring groove is known as  
 A) Solid skirt piston  
 B) Slipper piston  
 C) Cam ground piston  
 D) Heat dam piston
20. Which one is not belongs to 5S concept ?  
 A) Sort  
 B) Set in order  
 C) Strength  
 D) Sustain
21. The float unit is the part of  
 A) Temperature gauge  
 B) Oil pressure gauge  
 C) Tachometer  
 D) Fuel gauge
22. Which statement is correct ?  
 i. Oil pan is made of pressed steel.  
 ii. Oil pump is driven by engine camshaft.  
 iii. Piston made of Aluminium alloy.  
 iv. Flywheel works as a part of clutch.  
 A) i only  
 B) all of these i, ii, iii and iv  
 C) both iii and iv  
 D) both i and ii

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23. The firing order of a 6 cylinder diesel engine is
- i. 1 – 5 – 3 – 6 – 2 – 4
  - ii. 1 – 4 – 2 – 6 – 3 – 5
  - iii. 1 – 6 – 5 – 3 – 2 – 4
  - iv. 1 – 3 – 4 – 2 – 6 – 5
- A) i only  
B) both ii and iii  
C) both ii and iv  
D) both i and ii
24. The qualities of a bearings are
- i. Fatigue strength
  - ii. Embedability
  - iii. Conformability
  - iv. Thermal conductivity
- A) both ii and iii  
B) both i and iv  
C) all of these i, ii, iii and iv  
D) both i and ii
25. Which statement is correct ?
- i. Water pump is driven by engine pulley.
  - ii. Thermostat valve is fitted between water outlet of the cylinder head and the inlet of the radiator.
  - iii. Radiator cores are made of high carbon steel.
  - iv. Inter cooler is the part of cooling system.
- A) both i and ii  
B) both i and iv  
C) all of these i, ii, iii and iv  
D) both ii and iii
26. Inlet valves are made to open certain degree earlier than TDC is called
- A) Lag  
B) Lead  
C) Overlap  
D) Timing
27. Which statement is wrong ?
- i. The Gudgeon pin is supported on piston pin boss.
  - ii. In a piston minimum number of compression rings are 2.
  - iii. The portion below the Gudgeon pin is called land.
  - iv. Compression rings are made of stainless steel.
- A) i only  
B) ii only  
C) Both ii and iv  
D) Both iii and iv
28. What are the causes of high oil consumption in an engine ?
- A) Worn out piston and cylinder wall
  - B) Excessive backlash in timing gear
  - C) Worn out pump rotors
  - D) Worn out camshaft bearings

A

29. Excessive tappet clearance will effect
- i. Valve lag
  - ii. Noise in operation
  - iii. Reduce swept volume
  - iv. Charge leakage
- A) both iii and iv                      B) both i and ii  
C) both ii and iv                      D) ii only
30. Which statement is correct ?
- i. Oil pump is driven by compressed air.
  - ii. Water pump is driven by engine pulley.
  - iii. Cooling fan is driven by electric motor.
  - iv. Thermostat valve is helps to over heat engine.
- A) i only                      B) ii only  
C) both ii and iii                      D) both i and iv
31. What will happen if the engine oil exceeds prescribed limit ?
- A) Oil leakage                      B) Better lubrication  
C) Engine run over speed                      D) Better cooling
32. The purpose of Flywheel ring is
- A) Power transmission                      B) Balancing  
C) Starting purpose                      D) Heat dissipation
33. The number about diesel engine which deals with engine knocking is
- A) Octane Number                      B) Cetane Number  
C) Engine Number                      D) Chassis Number
34. The secondary filter of diesel fuel system is made up of
- A) Cotton                      B) Maica Element  
C) Paper Element                      D) Metal Net
35. The Fuel Feed pump is driven by
- A) Crankshaft                      B) FIP Camshaft  
C) Push Rod                      D) Fan Belt
36. In HEUI injector which type of energy is used to actuate the diesel fuel injectors ?
- A) Mechanical Energy                      B) Electrical Energy  
C) Hydraulic Energy                      D) Electronic Energy

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37. EGR reduces the \_\_\_\_\_ content of emission.
- A) NO<sub>x</sub> content
  - B) CO content
  - C) HC content
  - D) H<sub>2</sub>O content
38. In CRDI System high pressure pump develops pressure up to \_\_\_\_\_ bar.
- A) 200 to 2000
  - B) 10 to 2000
  - C) 1500 to 3500
  - D) 3500 to 5000
39. What is EDC ?
- A) Electronic Diesel Control
  - B) Eco Diesel Control
  - C) Economic Diesel Control
  - D) Electronic Diesel Charging
40. Composition percentage of DEF in selective catalytic reduction is
- A) 70% de-ionized water 30% urea
  - B) 72.5% de-ionized water 27.5% urea
  - C) 62.5% de-ionized water 37.5% urea
  - D) 67.5% de-ionized water 32.5% urea
41. \_\_\_\_\_ are provided in the fuel tank to minimize the slushing of fuel due to movement inside the tank.
- A) Weight separator
  - B) Low pressure additive
  - C) Baffles
  - D) Cast iron net
42. The cold starting device used in modern diesel engine is
- A) Spark Plug
  - B) Heater Coil
  - C) Glow Plug
  - D) Electric Spark
43. Working Principle of clutch is
- A) Gravity
  - B) Density
  - C) Friction
  - D) Torque
44. Position of clutch in Transmission system is
- A) In between gear box and propeller shaft
  - B) In between engine flywheel and gear box shaft
  - C) In between clutch shaft and counter shaft
  - D) In between differential and final drive
45. Fluid Coupling is generally used with
- A) Constant mesh gear box
  - B) Epicyclic gear box
  - C) Sliding mesh gear box
  - D) Synchro mesh gear box

A



46. Working Principle of Flywheel is  
 A) Friction  
 B) Inertia  
 C) Surface Tension  
 D) Viscosity
47. The function of gear box is  
 A) Change torque and speed  
 B) Change speed only  
 C) Change torque only  
 D) None of the above
48. Throw out bearing is a part of  
 A) Clutch System  
 B) Gear box System  
 C) Differential System  
 D) Axle System
49. What do you mean by CVT ?  
 A) Constant Variable Timing  
 B) Constant Valve Timing  
 C) Continuously Variable Transmission  
 D) Continuously Variable Timing
50. Which type of joint permit small diffraction angle and linear variations ?  
 A) Flexible Disc  
 B) Double Joint  
 C) Pot Joint  
 D) Tripod Joint
51. Which type of gear converts rotary motion into linear motion and viceversa ?  
 A) Helical Gears  
 B) Rack and Pinion  
 C) Spur Gear  
 D) Bevel Gear
52. What is the advantage of Dog Clutch ?  
 A) No possibility of slip  
 B) More frictional area  
 C) Less pedal force to operate  
 D) Easy maintenance and repair
53. Which part of dual mass flywheel isolate the flywheel mass system of the engine ?  
 A) Gear Box  
 B) Vibration Damper  
 C) Crank Shaft  
 D) Cam Shaft
54. What is the advantage of using power steering system ?  
 A) To increase engine power  
 B) To increase engine RPM  
 C) To enhance fuel efficiency  
 D) To control vehicle with less effort

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55. Which type of spring will have good load carrying capacity and do not have noise in the suspension system ?
- A) Monoleaf Springs
  - B) Coil Springs
  - C) Multi Leaf Springs
  - D) Fire Composite Springs
56. Which part of electronic power steering reverts back to manual steering in case of failure in power steering ?
- A) Solenoid Valve
  - B) Force Compensator
  - C) Fail Safe Relay
  - D) Current Controller
57. What is the heart of Integral Power Steering System ?
- A) Flow Control Valve
  - B) Rotary Control Valve
  - C) Pressure Relief Valve
  - D) Unloading Valve
58. Which angle helps in self centering of wheels after negotiating turn ?
- A) Caster Angle
  - B) Kingpin Inclination
  - C) Included Angle
  - D) Camber Angle
59. What is the purpose of caster in wheel alignment ?
- A) Maintain directional stability and control
  - B) Reduce tyre wear
  - C) Reduce abnormal vibration
  - D) Convert steering torque input into voltage signal
60. What is the advantage of using Independent suspension system ?
- A) Suspension arrangement is simple
  - B) Shocks are transmitted from one wheel to other
  - C) Maintenance cost is less
  - D) Spring weight is less
61. Speciality of Ackerman Steering mechanism is
- A) Uses in Electric Vehicle only
  - B) Simplicity and less wear
  - C) Sensitive and high maintenance cost
  - D) Uses in Aircrafts
62. Which part of coil spring allows angular movement of linkages ?
- A) Stabilizer Bar
  - B) Ball joint
  - C) Lower Control Arm
  - D) Torsion Bar

**A**

63. Which system provides between axles and chassis ?  
A) Steering System  
B) Cooling System  
C) Breaking System  
D) Suspension System
64. What is the maximum permitted diffraction angle in tripod joint ?  
A) 13 degree  
B) 18 degree  
C) 26 degree  
D) 32 degree
65. Which type of tyre does not need removal from wheel for puncture repair ?  
A) Radial ply tyre  
B) Tubeless tyre  
C) Tubed tyre  
D) Cross ply tyre
66. If the tyre is over inflated, the area of contact with road will be  
A) At both the edges  
B) At the wall  
C) Uniform wear on thread area  
D) At the centre
67. Which of the following statements are correct regarding 'Reversible wheel' ?  
i. Wheel disc can be mounted on either face to provide inset/outset.  
ii. The wheel track can be decreased or increased.  
iii. Wheel disc in which attachment face of disc in the centre line of rim.  
A) i and ii  
B) ii and iii  
C) i and iii  
D) all of the above
68. Why nitrogen tyres are preferable in aviation applications ?  
A) Economical aspects  
B) Light weight of nitrogen  
C) It doesn't expand and compress like air in altitude and temperature change  
D) Abundant of nitrogen availability in atmosphere
69. Weak brake shoe retracting spring may lead to  
A) Hard brake pedal  
B) Spongy brake  
C) Poor braking effect  
D) Brake drag
70. When brake is released, the pressurized fluid in brake line returned to the master cylinder by  
A) Lifting the check valve from its seat  
B) Deflecting the inner rubber cup in the check valve  
C) Opening bypass port  
D) By opening inlet port

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71. Which of the following statement(s) is/are not correct regarding ABS brake system ?
- I. It retains directional stability of vehicle.
  - II. It prevents wheel lock up during panic braking.
  - III. Increase split surface braking effect.
- A) I                      B) II                      C) III                      D) I, II and III
72. Choose the correct statement(s) regarding Engine braking.
- i. Slowing the engine by releasing engine compression.
  - ii. Stopping a diesel engine by closing off the exhaust path from the engine.
  - iii. Slow down the diesel engine by utilizing exhaust back pressure.
- A) i                                      B) ii  
C) iii                                      D) all of the above i, ii and iii
73. 4 sensor – 4 channel type ABS system usually employed in
- A) Front engine rear driving vehicles              B) Front engine front driving vehicles  
C) Rear engine rear driving vehicles              D) Rear engine front driving vehicles
74. In disc brakes, retraction of piston during brake release is caused with the help of
- A) Piston return spring                                      B) Piston retractor spring  
C) Brake pedal return spring                              D) Piston sealing ring
75. Care should be taken while using ohmmeter is
- A) Take care of “+” and “-” mark on terminals  
B) Do not connect to a live circuit  
C) Do not used to check the continuity of the field coils  
D) All of the above
76. Which electrical instrument is known as ‘VOM’ meter ?
- A) Ohmmeter                                      B) Ammeter  
C) Volt meter                                      D) Multimeter
77. Semi conductors are materials whose valency can be said to be
- A) Greater than 4                                      B) Less than 4  
C) 8                                      D) 4
78. Ignition coil can be said to be a type of
- A) Signal amplifier  
B) Voltage regulator  
C) Step up transformer  
D) Solenoid switch

**A**

79. Spark plug with end cap design improves engine performance by
- Improving combustion swirl
  - Provide good seal when installed
  - Minimizing the heat range of plug
  - Increase compression ratio
80. Which of the following statements are correct regarding 'Distributor less ignition system' ?
- Two spark plugs are ignited at the same time.
  - Two power stroke happens at the same time.
  - Ignition coil having two primary and two secondary windings.
- I and II
  - II and III
  - I and III
  - All of the above I, II and III
81. Output current of an alternator is regulated by
- Current regulator
  - Cut out relay
  - Rectifier
  - Self current limiting action
82. In charging system, the charging indicating lamp connected between
- Alternator field terminal (1G) and (L) terminal of an alternator
  - Alternator output terminal (B) and ground
  - Battery and alternator ground
  - Alternator field terminal (1G) and alternator ground
83. Why series wound starter motor is generally used in automobiles ?
- Silent operation
  - Minimum current consumption
  - High cranking speed
  - High starting torque
84. Starter motor brushes are given a curvature at bottom for
- Increase contact area with commutator
  - Reduce spring pressure on commutator
  - Reduce overheating
  - All of the above
85. 'Indexing pin' in the bulbs are used to
- Lock the wiring harness with bulb socket
  - Test the functioning of bulb
  - Position the bulb terminals properly in the socket
  - Test the bulb filament continuity

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86. Choose the wrong statement regarding 'Tail lamp operation'.  
i. Tail lamp will illuminate only when brake pedal is pressed  
ii. Tail lamp will illuminate with headlights  
iii. It give indication to the vehicles behind driving in nights  
A) i  
B) ii  
C) iii  
D) All of the above i, ii and iii
87. Choose the color used for pilot lamps.  
A) White                    B) Green                    C) Amber                    D) Red
88. The receiver drier with desiccant in Car AC is located at  
A) Between condenser and expansion valve  
B) Between expansion valve and evaporator  
C) Between compressor and condenser  
D) Between evaporator and compressor
89. The component used in AC system which transfer heat from passenger compartment into the Refrigerant  
A) Condensor                    B) Expansion valve  
C) Blower                    D) Evaporator
90. The component which forms the interface between the high pressure side and low pressure side of the refrigerant circuit  
A) Condensor                    B) Expansion valve  
C) Blower                    D) Evaporator
91. ICAT stands for  
A) International Car Anti Theft system  
B) Intelligent Centre for Automobile Technology  
C) Intelligent Computerized Anti Theft system  
D) International Car Automated Technologies
92. The propellant unit in air bag inflation contains  
A) Sodium bicarbonate ( $\text{NaHCO}_3$ ) and Calcium nitrate ( $\text{Ca}(\text{NO}_3)_2$ )  
B) Sodium azide ( $\text{NaN}_3$ ) and potassium nitrate ( $\text{KNO}_3$ )  
C) Sodium (Na) and Ammonia ( $\text{NH}_3$ )  
D) Sodium azide ( $\text{NaN}_3$ ) and Ammonia ( $\text{NH}_3$ )
93. How many GPS satellites are minimum needed to plot a 3D position ?  
A) 3                    B) 4                    C) 5                    D) 6

**A**

94. The Diagnostic Trouble Code starting 'U1XXX' indicates
- A) Error code related to power train and for government required code
  - B) Error code related to chassis and for manufacturer specific code
  - C) Error code related to Body and for government required code
  - D) Error code related to class 2 network and for manufacturer specific code
95. As per MV Act, the vehicle is said to be 'Light motor vehicle' if
- A) Gross vehicle weight should be within 8000 kg
  - B) The unladen weight does not exceed 7500 kg
  - C) Gross vehicle weight should be within 7000 kg
  - D) The laden weight does not exceed 8500 kg
96. Choose the correct method of measuring 'overall length' of a vehicle.
- i. Measurement between extreme projection planes of the vehicle including any spare wheel or spare wheel bracket fitted to the vehicle.
  - ii. Measurement between extreme projection planes of the vehicle excluding any fire-escape fixed to a vehicle.
- A) i only
  - B) ii only
  - C) Both i and ii
  - D) None of the above i, ii
97. In EFI, the idle speed of engine is controlled by ECU with the actuation of
- A) IAT sensor
  - B) Fuel injectors
  - C) IAC valve
  - D) Throttle valve
98. Function of Inertia sensor
- A) Shutt off the fuel pump in the event of an accident
  - B) Maintain the engine RPM when vehicle not moving
  - C) Allow additional air to bypass the throttle plate during cold start
  - D) To maintain the pressure in the fuel rail at a minimum constant value
99. At low engine speed in Variable Length Intake Manifold system, air flow redirected to
- A) Shorter but larger sectional area path
  - B) Longer path with limited cross sectional area
  - C) Longer path with large sectional area
  - D) Shorter path with very narrow cross sectional area
100. Lambda sensor produce greater voltage if
- A) More oxygen in exhaust
  - B) More CO in exhaust
  - C) Less oxygen in exhaust
  - D) None of the above

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Space for Rough Work

