

218/23

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.



1. During marking, the reference surface is provided by
  - A) Surface gauge
  - B) Marking off table surface
  - C) Job surface
  - D) Side of the job
2. Scriber is made of
  - A) Mild steel
  - B) Gun metal
  - C) Brass
  - D) High carbon steel
3. What is determined while measuring a component ?
  - A) Actual size
  - B) Scale size
  - C) Nominal size
  - D) Tolerance size
4. In a metric micrometer, one complete revolution of thimble advances
  - A) 1.00 mm
  - B) 0.01 mm
  - C) 0.50 mm
  - D) 0.02 mm
5. Clearance between mating parts is measured by
  - A) Pitch gauge
  - B) Feeler gauge
  - C) Dial gauge
  - D) Plug gauge
6. The best way of avoiding accidents is by
  - A) Using proper tools
  - B) Using safety equipment
  - C) By observing safety precautions
  - D) Doing work in ancient way
7. Vernier caliper parts used to measure depths of holes
  - A) External jaws
  - B) Internal jaws
  - C) Depth measuring blade
  - D) Beam
8. What is the period referred as golden ?
  - A) First 30 minutes
  - B) First 45 minutes
  - C) First 60 minutes
  - D) First 50 minutes
9. What is the use of telescopic gauge ?
  - A) Measure angle
  - B) Measure depth
  - C) Measure external dimension
  - D) Measure size of holes

10. Which precision instrument is used for comparing and determining the variation in size of the component ?
 

A) Vernier caliper	B) Dial test indicator
C) Inside micrometer	D) Surface gauge
11. Which of the following statement related to solid type tap wrench ?
  - A) It can take only certain sizes of taps
  - B) These are more suitable for large diameter taps
  - C) It has small adjustable chucks with two jaws
  - D) These wrenches are not adjustable
12. Screw drivers are specified according to
  - i. Indian standard number
  - ii. Width of the tip
  - iii. The material it is made of
  - iv. Length of the blade

A) Only ii and iv	B) Only i	C) Only ii and iii	D) Only iv
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13. What is the length of snap head rivet generally used in the shop floor ?
 

A) $L = T + 0.6 D$	B) $L = T + 1.2 D$	C) $L = T + 1.5 D$	D) $L = T + 2.4 D$
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14. Which part used in adjustable screw plate die the two die halves are held securely in a collar ?
 

A) Split screw	B) Guide plate
C) Special die holder	D) Centre adjusting screw
15. Which chisel used for cutting oil grooves ?
 

A) Web chisel	B) Diamond point chisel
C) Cross-cut chisel	D) Half-round nose chisel
16. What is the pitch of hacksaw blade generally for cutting copper ?
 

A) 0.8 mm	B) 1 mm	C) 1.4 mm	D) 1.8 mm
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17. Bastard file used to
  - A) Bring the jobs close to the finishing size
  - B) Bring the material to high degree of finish
  - C) Heavy reduction of material
  - D) Trimming the rough edges of soft metal castings

18. The sensitive bench drilling machine is capable of drilling holes upto \_\_\_\_\_ diameter.
- A) 8.5 mm                      B) 10.5 mm                      C) 12.5 mm                      D) 13.5 mm
19. Which of the following is related to countersunk tooth type lock washer ?
- A) Used with small head screws                      B) Used on oval type head screws  
C) Mounting holes are over size                      D) Provides the greatest resistance
20. Which of the following can be used for locking the nuts which are located near an edge or corner ?
- A) Locking plate                                              B) Slotted and castle nut  
C) Penning nut                                              D) Tab washer
21. Which of the following statements are correct ?
- Statement 1** : In the Otto cycle combustion takes place at constant volume.  
**Statement 2** : In Diesel cycle combustion takes place at constant volume.
- A) Both Statements are correct                      B) Both Statements are incorrect  
C) Only Statement 1 is correct                      D) Only Statement 2 is correct
22. In a two stroke engine, the entry of fresh charge, pushes out the exhaust gases through exhaust port. This process is known as
- A) Transfer Port Scavenging                      B) Cross Flow Scavenging  
C) Exhaust Port Scavenging                      D) Loop Flow Scavenging
23. Which of the following statements are correct ?
- Statement 1** : Two stroke engine is simpler, compact and lighter.  
**Statement 2** : Two stroke engine has lower volumetric efficiency.
- A) Both Statements are correct                      B) Both Statements are incorrect  
C) Only Statement 1 is correct                      D) Only Statement 2 is correct
24. In an inline 6 cylinder 4 stroke engine a firing impulse occur at every \_\_\_\_\_ degrees of crankshaft revolution.
- A) 180                      B) 160                      C) 360                      D) 120
25. The distance between the cylinder wall and the piston skirt is known as
- A) Piston Clearance                                              B) Skirt Clearance  
C) Cylinder Clearance                                              D) Both A) and B)

26. Which of the following statements are true about valve overlap ?

**Statement 1** : Valve overlap helps in scavenging of exhaust gases.

**Statement 2** : Valve overlap is the number of degrees of camshaft rotation during both valves are open.

- A) Both Statements are correct                      B) Both Statements are incorrect  
 C) Only Statement 1 is correct                      D) Only Statement 2 is correct
27. For increasing volumetric efficiency of an engine at higher speeds, which of the following technologies are used ?
- A) Variable Valve Timing                              B) Variable Ignition Timing  
 C) Valve Overlap                                        D) Valve Lag
28. The period in which the injected diesel fuel remaining in the combustion chamber after the injection stops, continues to burn is known as
- A) Delay Period                                        B) After Burning Period  
 C) Uncontrolled Burning Period                      D) Controlled Burning Period
29. \_\_\_\_\_ helps to reduce the fluctuation of crankshaft speed during an engine cycle.
- A) Vibration damper                                  B) Balancer shaft  
 C) Flywheel                                              D) Counter weights
30. Which of the following statement is correct ?
- Statement 1** : For same compression ratio Otto cycle is more efficient than Diesel cycle.
- Statement 2** : For same compression ratio Diesel cycle is more efficient than Otto cycle.
- A) Both Statements are correct                      B) Both Statements are incorrect  
 C) Only Statement 1 is correct                      D) Only Statement 2 is correct
31. The ratio between Brake power and Indicated power is known as
- A) Mechanical efficiency                              B) Brake thermal efficiency  
 C) Volumetric efficiency                              D) Indicated thermal efficiency
32. An engine having stroke equal to its bore is known as
- A) Wankel engine                                      B) Over square engine  
 C) Square engine                                        D) Under square engine

33. Which metal is filled inside the poppet valve for cooling purpose ?  
 A) Magnesium      B) Potassium      C) Mercury      D) Sodium
34. The advantage of using hydraulic tappet is  
 A) Eliminates tappet noise      B) No need of valve lash adjustment  
 C) All of the above      D) None of the above
35. The connecting rod big end bearing is connected to  
 A) Crank pin      B) Crank web  
 C) Main journal      D) Main bearing
36. The bearing used to prevent to and fro motion of crankshaft in endwise direction is known as  
 A) Shell Bearing      B) Journal Bearing  
 C) Thrust Bearing      D) Main Bearing
37. The device used to prevent engine roll tendency about its own axis in a transverse mounted engine is known as  
 A) Hydraulic engine mount      B) Torque Strut  
 C) Mac Pherson Strut      D) Isolator
38. What is the advantage of offsetting Piston pin towards the major thrust side ?  
 A) For reducing knocking      B) For reducing friction loss  
 C) For better heat dissipation      D) To minimizing piston slap
39. The difference between crankshaft journal diameter and the bearing diameter is known as  
 A) Oil Clearance      B) Crankshaft Clearance  
 C) Thrust Clearance      D) Journal Clearance
40. Firing order of an inline 6 cylinder engine  
 A) 1-2-3-4-5-6      B) 1-5-3-6-2-4  
 C) 1-3-2-4-5-6      D) 1-3-4-2-5-6
41. In an IC engine the worn out piston rings causes  
 A) Low oil pressure      B) Excessive black smoke  
 C) High oil consumption      D) Both A) and B)

42. Which one of the following statement is not true in pump circulating system ?
- A) The rate of flow of water is directly proportional to the engine speed
  - B) The waterpump inlet is connected to the radiator outlet
  - C) The water jackets are in cylinder block and head
  - D) The fan belt is connected by camshaft, waterpump and alternator
43. The heat transfer from coolant to air in radiator of an automobile engine takes place
- A) Conduction
  - B) Convection
  - C) Radiation
  - D) Both A) and B)
44. Backlash between the oil pump gears is measured by
- A) Screw pitch gauge
  - B) Screw gauge
  - C) Feeler gauge
  - D) Dial gauge
45. In the bellows type thermostat, the metallic bellows filled with
- A) Ethyl
  - B) Methyl
  - C) Butane
  - D) Propane
46. The thermostat valve starts to open at about
- A) 30 – 40 °C
  - B) 50 – 60 °C
  - C) 70 – 80 °C
  - D) 90 – 100 °C
47. Which one of the following is an example of engine oil ?
- A) SAE 30
  - B) SAE 60
  - C) SAE 90
  - D) SAE 140
48. In rotor type oil pump the inner rotor has
- A) 3 Lobes
  - B) 4 Lobes
  - C) 5 Lobes
  - D) None of the above
49. When by pass re-circulation is done by the cooling system
- A) Engine overheat
  - B) Thermostat valve open
  - C) Thermostat valve closed
  - D) All of the above
50. The oil pressure relief valve is fitted to the
- A) Inlet of oil pump
  - B) Outlet of the oil pump
  - C) Inlet of oil filter
  - D) Outlet of the oil filter



51. What is the name of pipe line from FIP to injector in a diesel fuel feed system ?
- A) High pressure pipe                      B) Low pressure pipe  
C) Delivery pipe                              D) Sution pipe
52. Why is there a vent hole provided either in filler neck or cap in an engine fuel tank ?
- A) Not need for vent hole                      B) To maintain atmospheric pressure  
C) To avoid overflow                              D) To maintain fuel temperature
53. Which component is develop the diesel pressure in the CRDI engine ?
- A) Common rail                                      B) Fuel filter  
C) FIP                                                  D) High pressure pump
54. Which of the following statement is/are correct ?
- i. Volatility is the ability of the gasoline to evaporate  
ii. Diesel and gasoline contain some sulphur  
iii. Diesel engine fuel is highly refined distillate fuel obtained from fractional distillation of crude oil
- A) Only i and ii                                      B) Only ii and iii  
C) Only i and iii                                      D) All of the above i, ii and iii
55. Which type of carburettor is fitted under the inlet manifold of an engine ?
- A) Down draft                                      B) Up draft  
C) Horizontal draft                                      D) Natural draft
56. Which one of the following does the MAP sensor measure ?
- A) Compression pressure                              B) Exhaust manifold pressure  
C) Intake manifold pressure                              D) Stroke volume pressure
57. What is the proper order of fuel feed system in a conventional diesel engine ?
- A) Fuel tank, FIP, fuel filter, fuel feed pump, injector  
B) Fuel tank, feed pump, fuel filter, FIP, injector  
C) Fuel tank, fuel filter, FIP, feed pump, injector  
D) Fuel tank, injector, feed pump, FIP, fuel filter

58. Which fuel system develops the high diesel pressure by hydraulic energy ?
- A) CRDI fuel system
  - B) Inline FIP system
  - C) HEUI fuel system
  - D) Distributor type FIP system
59. Why baffles are provided in the fuel tank ?
- A) Minimize the slashing of fuel due to movement inside the tank
  - B) To make rectangular and lengthy fuel tank
  - C) To make chambers in the fuel tank
  - D) To strengthen the fuel tank
60. Which of the following statement is/are correct about HEUI ?
- i. HEUI fuel system represents one of the most significant innovations in diesel engine technology
  - ii. The highly sophisticated HEUI system uses mechanical energy instead of hydraulic energy to operate fuel injectors
  - iii. HEUI made easy of many limitations of mechanical and conventional electronic injectors
- A) Only i and iii
  - B) Only i and ii
  - C) Only ii and iii
  - D) All of the above i, ii and iii
61. Which of the following statement is/are correct about functions of air cleaner ?
- i. It cleans the intake air
  - ii. It reduces the noise of the intake air
  - iii. It act as a flame arrester during engine backfire
- A) Only i and ii
  - B) Only ii and iii
  - C) Only i and iii
  - D) All of the above i, ii and iii
62. Which type of mufflers are designed to produce anti noise without restricting exhaust flow ?
- A) Straight through type
  - B) Baffle type
  - C) Electronic type
  - D) Reverse flow type
63. What is the purpose of catalytic converter ?
- A) Control the temperature
  - B) Control the intake air
  - C) Control the emission
  - D) Control the lubrication

64. What is the primary purpose of a Variable Intake Manifold system in a Electronic Fuel Injection ?
- To enhance the volumetric efficiency
  - To increase air-fuel ratio
  - To reduce carbon deposit
  - To eliminate carbon monoxide
65. It is a device which increase the pressure of the air fuel mixture from the carburettor before it enters the engine. It is fitted in the way of intake manifold.
- Super charger
  - Turbo charger
  - Exhauster
  - Governor
66. Which one of the device changes carbon monoxide into carbon dioxide in the exhaust gas ?
- EGR system
  - Canister
  - Catalytic converter
  - Exhauster
67. Which one of the emission control system that blow by gases are feed into the inlet manifold of a running engine ?
- EGR system
  - Positive crank case ventilation
  - Catalytic converter
  - Exhauster
68. Which material is generally used for construction of exhaust manifold of an engine ?
- Aluminium
  - Plastic
  - Aluminium alloy
  - Cast iron
69. Which of the following statement is/are correct about SCR ?
- SCR is to reduce harmful Nitrogen Oxides ( $\text{NO}_x$ ) emission from diesel engines
  - SCR reduces  $\text{NO}_x$  emission upto 90%
  - SCR process requires diesel exhaust fluid
- Only i and ii
  - Only ii and iii
  - Only i and iii
  - All of the above i, ii and iii

70. It is a device which is located on top of the fuel tank or part of the expansion overflow tank. This device prevents liquid gasoline from entering the vent line to the EVAP canister.
- A) Exhauster                                              B) Liquid vapour separator  
C) Rheostat                                              D) Air mass meter
71. The oversize pistons are generally available \_\_\_\_\_ inch above the standard size.
- A) 0.001                      B) 0.002                      C) 0.01                      D) 0.02
72. Which of the following is not used to measure the engine bearing clearance ?
- A) Telescopic gauge                                      B) Plastigage  
C) Feeler gauge                                      D) Micrometer
73. The difference of readings in the top and bottom in the same direction in a cylinder bore is known as
- A) Ovality                                              B) Taper  
C) Both A) and B)                                      D) None of these
74. A dial test indicator is used to check the
- A) Crank pin wear                                      B) Piston to cylinder clearance  
C) Warpage of cylinder head                                      D) Crankshaft end play
75. Valve stem to valve guide clearance in case of exhaust valves will not exceed
- A) 0.125 mm                      B) 0.15 mm                      C) 0.225 mm                      D) 0.25 mm
76. What is the result of a thick cylinder head gasket used instead of a standard one ?
- A) Increase compression pressure                      B) Increasing compression ratio  
C) Decreasing compression ratio                      D) Leaking of compression
77. It is not a reason for diesel engine does not start or stalls just after starting
- A) Clogged air cleaner                                      B) Air lock  
C) Defective injection timing                                      D) Clogged oil filter
78. The piston ring end clearance is measured with a
- A) Feeler gauge                                              B) Steel rule  
C) Dial gauge                                              D) Micrometer

79. Compression pressure reading of adjacent cylinders are same and less than specific value indicate
- A) Worn out piston rings                      B) Pitted valves  
C) Damaged cylinder head gasket            D) Blow-by
80. To check the mechanical condition of the engine, the vacuum gauge is connected on the
- A) Cylinder head                                  B) Induction manifold  
C) Injector                                          D) Air cleaner
81. Which is mathematical formula for Electric power ?
- A)  $V \times R$                       B)  $VI \times t$                       C)  $V \times I$                       D)  $V \times L$
82. The amount of voltage differs from point to point in
- A) Series circuit                                  B) Parallel circuit  
C) Open circuit                                    D) Closed circuit
83. What is the colour used for 20 Amp fuse rating ?
- A) Red                                              B) Green                              C) White                              D) Yellow
84. Which information is printed on the body of the resistor ?
- A) Resistor colour                              B) Resistor length  
C) Power rating                                  D) All of these
85. The ability to store energy in the form of electric charge is
- A) Capacitance                                  B) Inductance  
C) Impedance                                    D) Conductance
86. The capacity of a battery is determined by number of plates per cell and
- A) Number of cell                              B) Size of plates  
C) Shape of plates                              D) All of these
87. The specific gravity reading 1.120 indicate which state of charge of Lead acid battery ?
- A)  $\frac{1}{2}$  discharged                              B)  $\frac{3}{4}$  charged  
C) Fully discharged                              D) Fully charged

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88. What is the cause for battery parasitic drain ?

- A) Terminal too tight  
B) Sulphation formed  
C) Low load on battery  
D) High level of electrolyte

89. The device which opens or closes an auxiliary circuit under predetermined conditions in the main circuit is called

- A) Relay  
B) Contact breaker  
C) Rectifier diode  
D) Regulator coil

90. Which principle is applied in solenoid switch ?

- A) Impedance  
B) Inductance  
C) Conductance  
D) Electromagnetism

91. Which of the following statement is/are correct ?

- i. In alternator emf is generated in the stator coil  
ii. Diodes are used to convert AC to DC in alternator  
iii. Current regulator is used in alternator to regulate the current flow

- A) Only i and ii      B) Only ii and iii      C) Only i, ii and iii      D) Only i and iii

92. Which of the following statement is/are correct ?

- i. Commutator is used to convert AC to DC in an alternator  
ii. Worn out drive belt results noisy alternator  
iii. Cut out relay is used with alternator

- A) Only i and ii      B) Only iii      C) Only ii      D) Only i and iii

93. The speed of DC generator at which its output voltage just rises above the voltage of the battery being charged is known as

- A) Cutting out speed  
B) Cutting in speed  
C) Cutting off speed  
D) None of the above

94. Which of the following statement is/are correct ?

- i. In a DC generator emf is generated in armature  
ii. Current regulator, voltage regulator and cut out relay used with DC generator  
iii. Slip rings are used in DC generator

- A) Only i and iii      B) Only ii and iii      C) Only i and ii      D) Only i, ii and iii

95. Ignition warning light is used to identify the fault in
- A) Ignition system                                              B) Charging system  
C) Starting system                                              D) Lighting system
96. Loose or worn out alternator drive belt results
- A) Low output from alternator                                              B) Noisy alternator  
C) Engine overheat                                              D) All of the above
97. Possible causes of 'Charge indicator light flickers while driving' could be
- A) Over charged battery                                              B) Discharged battery  
C) Loose or worn alternator drive belt                                              D) All of the above
98. Which of the following statement is/are correct ?
- i. Cut out relay is used with alternator  
ii. Voltage regulator is used with DC dynamo  
iii. Current relay is used with alternator
- A) Only i and iii                                              B) Only ii  
C) Only iii                                              D) Only i
99. Which of the following statement is/are correct ?
- i. In alternator star connection stator will start charging at lower speeds  
ii. In alternator with delta connection stator will produce high output at lower speed  
iii. In alternator with delta connection stator will produce lower current at lower speed
- A) Only i and ii                                              B) Only ii and iii  
C) Only i and iii                                              D) Only i, ii and iii
100. Low or unsteady output from a DC generator due to
- A) Drive belt loose or slipping                                              B) Worn out or sticking brushes  
C) Worn out commutator                                              D) All of the above
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Space for Rough Work

