

005/2020

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total No. of Questions: 100

Maximum : 100 Marks

Time : 75 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.

005/2020-A



005/2020

Total Marks : 100 Marks

Time : 1 hour and 15 minutes

1. Electricity in motion is called
(A) static current (B) dynamic current
(C) electric current (D) none of these
2. The nucleus is the central part of the
(A) neutron (B) proton
(C) electron (D) atom
3. The electron is _____ times larger in diameter than the proton.
(A) two (B) three
(C) four (D) five
4. Atoms that have the outer shell exactly filled are chemically
(A) active (B) inactive
(C) pro-active (D) combine other elements
5. A conductor is a material that has many free
(A) electrons (B) neutrons
(C) protons (D) nucleus
6. Specially treated _____ are used to make modern electronic components such as diodes, transistors and integrated circuit chips.
(A) conductors (B) insulators
(C) semi-conductors (D) super-conductors
7. The ammeter is connected in _____ in the circuit on the vehicle panel board.
(A) series (B) parallel
(C) temporarily (D) none of these
8. To check the continuity of the field coils _____ is used.
(A) volt meter (B) ammeter
(C) hydrometer (D) ohmmeter

9. Each load receives full system voltage in _____ circuit.
- (A) open (B) short
(C) parallel (D) series
10. The scale of the ohm meter is
- (A) non-linear (B) Scale is usually backward.
(C) both (A) & (B) (D) none of these
11. The cored solder used for electrical/electronic work is
- (A) 50% tin : 50% lead (B) 60% tin : 40% lead
(C) 40% tin : 60% lead (D) 50% tin : 50% copper
12. _____ is essentially required for the protection of building against lightning
- (A) Shielding (B) Earthing
(C) Neutral (D) None of these
13. When multimeter is set for the _____ function, the multimeter must not to the circuit with the circuits power is on.
- (A) voltmeter (B) ammeter
(C) ohmmeter (D) hydrometer
14. Fuse is a/an _____ portion in the electrical circuit.
- (A) conductor (B) insulated
(C) strongest (D) weakest
15. In automobile electrical, _____ circuits are found without fuse.
- (A) oil pressure lamp (B) head light
(C) horn (D) heater & air conditioner
16. The mathematical expression of Ohm's law is
- (A) $I = VR$ (B) $I = R/V$
(C) $I = V/R$ (D) $R = VI$
17. Which metal is having property of more electric conductivity ?
- (A) Copper (B) Gold
(C) Aluminum (D) Silver

18. In electronic industry most of the resistors used are _____ resistors.
- (A) carbon (B) wire wound
(C) metal film (D) cement film
19. The unit of electric charge stored in a capacitor is
- (A) voltage (B) ampere
(C) farad (D) coulomb
20. The positive plate grids of lead acid battery is filled with
- (A) antimony alloy (B) carbon
(C) spongy lead (D) lead peroxide
21. Transmission and control of power by means of _____ is called hydraulics.
- (A) air (B) electricity
(C) liquid (D) vacuum
22. The unit of pressure 1 bar is equal to
- (A) 100 kPa (B) 14.5 psi
(C) 1.02 kgf/cm² (D) all of these
23. _____ states that pressure exerted on a fluid is transmitted equally in all directions, acting with equal forces on equal areas.
- (A) Ohm's law (B) Newton's law
(C) Pascal's law (D) Boyle's law
24. The unit FRL means
- (A) Fuel Regulated Line (B) Filter Regulator & Lubricator
(C) Fuel Regulated Lubricator (D) none of these
25. Compression Ratio (CR) of an engine is equal to
- (A) VS/VC (B) VC/VS
(C) (VS + VC)/VC (D) VS/(VS + VC)

26. Indicated Horse Power (IHP) of an engine :

- (A) $\frac{2\pi NT}{4500}$ (B) $\frac{P_m LAN}{4500} \times K$
(C) $\frac{2\pi NT}{4500} \times K$ (D) $\frac{P_m LAN}{4500}$

27. Compression ratio of diesel engines are approximately

- (A) 6 : 1 (B) 10 : 1
(C) 24 : 1 (D) 50 : 1

28. In diesel engines,

- (A) Ignition takes place at constant pressure and heat rejected at constant volume
(B) Ignition take place at constant volume and heat rejected at constant volume
(C) Ignition take place at constant volume and heat rejected at constant pressure
(D) Ignition take place at constant pressure and heat rejected at constant pressure

29. The instrument indicate the distance covered by a vehicle is

- (A) speedometer (B) RPM meter
(C) Ammeter (D) Odometer

30. Materials used for the liners are

- (A) cast iron (B) aluminum
(C) nitride cast iron (D) aluminum alloy

31. The valves used in 2 stroke engines :

- (A) Poppet valve (B) Rotary valve
(C) Reed valve (D) Sleeve valve

32. The valve overlap is provided

- (A) at the end of exhaust stroke and the beginning of suction stroke.
(B) at the end of suction stroke and the beginning of compression stroke.
(C) at the end of compression stroke and the beginning of the power stroke.
(D) at the end of power stroke and the beginning of exhaust stroke.

33. The extra groove cast in between top ring groove and piston crown is known as
 (A) ring section (B) land
 (C) split skirt (D) heat dam
34. The skirt of _____ piston is oval in shape, the diameter across the gudgeon pin is less and when the piston heated up the bosses expand outwards making piston round.
 (A) solid skirt (B) cam ground
 (C) slipper (D) split skirt
35. The piston pins are made of
 (A) nickel alloy (B) cast iron
 (C) bronze (D) copper
36. The inertia of the _____ tends to keep the crankshaft to rotate at a constant speed.
 (A) vibration damper (B) balancing weight
 (C) crank-arms (D) flywheel
37. The lining materials for crankshaft bearings are
 (A) copper-lead (B) copper-cadmium alloy
 (C) lead-copper (D) all the above
38. _____ can take axial and radial loads.
 (A) Ball bearings (B) Roller bearings
 (C) Taper roller bearings (D) Needle roller bearings
39. In some engines the axis of the tappet is slightly offset from the axis of the cam lobe to
 (A) convert the rotary motion into reciprocating motion
 (B) to drive fuel pump
 (C) to rotate tappet or lifter when it moves up
 (D) to get the drive from crank shaft
40. In cam shaft drive mechanism camshaft rotates in the reverse direction of the crankshaft in
 (A) gear drive (B) chain drive
 (C) belt drive (D) gear drive with idler gear

41. In a 4 stroke diesel engine the number of teeth of the camshaft sprocket is _____ the number of teeth of sprocket on crankshaft.
- (A) same (B) double
(C) half (D) none of these
42. The maximum wear of the bore occurred at
- (A) top non-thrust side (B) top thrust side
(C) bottom non-thrust side (D) bottom thrust side
43. At the end of combustion the temperature inside cylinder will reach approximately
- (A) 400° C (B) 800° C
(C) 2200° C (D) 100° C
44. In automobile engines the water pump used in cooling system is
- (A) gear type (B) centrifugal type
(C) plunger type (D) vane type
45. The _____ helps to bring the cold engine to working temperature quickly.
- (A) thermostat (B) cooling fins
(C) radiator (D) water pump
46. In higher altitude, the water boils at
- (A) 100° C (B) below 100° C
(C) above 100° C (D) 4° C
47. Oil pumps are driven by
- (A) electricity (B) crank-shaft
(C) cam-shaft (D) vacuum
48. To limit the max pressure of the oil in lubrication system
- (A) pump stops when limit reached
(B) relay provided to disconnect pump
(C) a pressure relief valve provided
(D) none of these

49. In muffler assembly catalytic converter is provided to
(A) increase power (B) reduce noise
(C) reduce pollution (D) none of these
50. Drive of the mechanical fuel pump is getting from _____
(A) crank-shaft (B) cam-shaft
(C) connecting rod (D) timing gear
51. Drive of the high pressure pump in CRDI diesel engine is getting from
(A) crank-shaft (B) cam-shaft
(C) flywheel (D) timing gear
52. The lubricating oil is diluted by
(A) water (B) fuel
(C) dust (D) mixing of other particles
53. Oil cooler is provided in engine for
(A) cooling system (B) scavenging
(C) crank case ventilation (D) cooling lubricating oil
54. In Modern vehicles the lubrication system commonly used are
(A) gravity feed (B) splash system
(C) drip type (D) pressure lubricating type
55. The part which make the boiling point of engine increased
(A) water jacket (B) radiator
(C) pressure cap (D) thermostat valve
56. A thermostat valve is opened
(A) almost 80° C (B) almost 100° C
(C) 0° C (D) almost 4° C
57. Bleeding of fuel system means removing _____ from the system.
(A) water (B) dust
(C) fuel (D) air

58. In two stage filter system, the material used as secondary filter is
- (A) wire mesh (B) cloth
(C) paper (D) nylon
59. The timing and quantity of the fuel sprayed is controlled by
- (A) rotating plunger (B) rotating barrel
(C) the governor (D) priming pump
60. The process of testing the pump for the accuracy of their supplying fuel at correct intervals is
- (A) calibration (B) phasing
(C) priming (D) governing
61. The _____ is a device for holding any speed steady between idling and maximum speed.
- (A) injector (B) throttle pedal
(C) governor (D) feed pump
62. The process of driving exhaust gas out of the cylinder and replacing it with fresh air is called
- (A) exhaust stroke (B) scavenging
(C) charging (D) injection
63. In CRDI engines, high pressure diesel pump develops the pressure up to
- (A) 400 bar (B) 700 bar
(C) 1600 bar (D) 40 bar
64. Radiator fan motor on at below
- (A) 98° C (B) 93° C
(C) 82° C (D) 76° C
65. Emissions from a diesel automobile is coming from
- (A) the fuel tank (B) the crankcase
(C) the exhaust (D) all the above

66. In compression ignition engines the particulates are caused by
(A) lack of turbulence (B) lack of oxygen
(C) burning of lubricating oil (D) all of these
67. Lubrication and operation of fuel system components are done by natural lubricating properties of diesel fuel. It is improved by
(A) lead (B) sulphur
(C) nitrogen (D) hydrocarbons
68. To reduce NO_x emissions that contribute to air pollution _____ is provided.
(A) PCV valve (B) EGR valve
(C) DPF (D) EVAP
69. The _____ nozzle having an auxiliary spray hole for easy starting under cold condition.
(A) pintle type (B) delay type
(C) multihole type (D) pintaux type
70. The number of diodes used in an alternator is
(A) one (B) two
(C) three (D) six
71. Which part in an alternator protect battery from discharging ?
(A) regulator (B) rectifier diode
(C) slip ring (D) rotor
72. The engine crankshaft must be rotated at a speed of minimum _____ r.p.m to start the engine.
(A) 100 (B) 400
(C) 1200 (D) 3000
73. A typical ratio between the flywheel ring gear and the starter pinion is
(A) 100 : 1 (B) 10 : 1
(C) 15 : 1 (D) 25 : 1
74. Specific gravity of the fully charged lead acid battery is
(A) 1.00 (B) 1.11
(C) 1.20 (D) 1.28

75. The oxygen sensor is fitted in
(A) inlet manifold (B) air cleaner
(C) exhaust system (D) cylinder block
76. Heater plug is fitted in
(A) inlet manifold (B) combustion chamber
(C) fuel feed pump (D) air cleaner
77. The turbo charger is rotated by
(A) exhaust gas (B) belt from crank-shaft
(C) cam-shaft gear (D) electric motor
78. If in an engine complete combustion occurs, it produced
(A) carbon monoxide (B) carbon dioxide
(C) nitrogen oxide (D) oxygen
79. When the Bharat Stage III implemented Nation wide ?
(A) 2000 (B) 2005
(C) 2001 (D) 2010
80. In these type of clutches there is no possibility for slip :
(A) cone clutch (B) diaphragm clutch
(C) dog clutch (D) fluid coupling
81. _____ is distribute output torque to both side wheels uniformly.
(A) Rear axle (B) Final drive
(C) Differential (D) Propeller shaft
82. Fluid coupling is used along with the
(A) sliding mesh gear box (B) constant mesh gear box
(C) synchromesh gear box (D) Automatic gear box
83. Free clutch pedal play in a car is
(A) 30 mm (B) 60 mm
(C) 100 mm (D) 3 mm

84. Spur gear is used in _____ gear box.
- (A) sliding mesh (B) constant mesh
(C) synchromesh (D) automatic
85. In universal joint the bearing fitted in cross and spider is
- (A) bush (B) needle roller bearing
(C) tapered roller bearing (D) ball bearing
86. In fully floating axle, the axle shaft takes
- (A) vehicle load (B) side thrust
(C) driving thrust (D) all of these
87. In which type of axle, the drive axle can be replaced easily, without jack up the vehicle ?
- (A) three quarter type axle (B) semi-floating axle
(C) fully floating axle (D) dead axle
88. The distance between front and rear wheel centre is
- (A) wheel track (B) overhang
(C) wheel base (D) toe in
89. The angle between the vertical line from the centre point of tyre and the central line of the tyre is
- (A) camber (B) castor
(C) king pin inclination (D) toe in
90. To increase directional stability vehicles are provided
- (A) camber (B) castor
(C) king pin inclination (D) toe in
91. _____ is connected cross shaft with drag link.
- (A) Stub axle spindle (B) Track rod
(C) Drop arm (D) Steering arm

92. By adjusting on track rod, _____ can be adjusted.
(A) camber (B) castor
(C) king pin inclination (D) toe in-toe out
93. The weight of the components between suspension and the tyre including tyre is called
(A) sprung weight (B) unsprung weight
(C) gross vehicle weight (D) none of these
94. The stabilizer bar is fitted on vehicles to avoid
(A) roll (B) dip
(C) pitch (D) turn
95. _____ wheels cannot be used in modern vehicles with tubeless tyre
(A) Disc wheel (B) Alloy wheel
(C) Wire wheel (D) Composit wheel
96. Tyre wear more from centre which indicate
(A) tyre is under inflated (B) tyre is over inflated
(C) camber angle more (D) camber angle less
97. On a Tyre 195/55 R 16 87 V is marked in this, what it is indicated by the number 55 ?
(A) Section width (B) Rim size
(C) Aspect ratio (D) Load carrying capacity
98. Steering wheel vibration is mainly due to
(A) unbalanced front tyre (B) incorrect castor
(C) incorrect camber (D) toe out
99. On which principle hydraulic brakes are working ?
(A) Ohm'slaw (B) Boyle's law
(C) Charle's law (D) Pascal's law
100. In disc brakes self adjustment is done by
(A) calliper (B) piston
(C) piston seal (D) calliper pin

SPACE FOR ROUGH WORK

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