

219/2015

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. The engine runs in a closed garage can be dangerous because :
 - (A) The exhaust gas contains carbon monoxide
 - (B) The exhaust gas contains carbon dioxide
 - (C) The exhaust gas contains water vapour
 - (D) The exhaust gas may catch fire

2. Which of the following should not be done by a good mechanic?
 - (A) Put sharp edged tools in the pocket
 - (B) Wipe excess oil and grease off the hands and tools
 - (C) Always keep the workshop floor clean
 - (D) Wear safety goggles while grinding

3. Which of the following is not used in fire extinguishers?
 - (A) Foam
 - (B) Dry chemicals
 - (C) Solution of sodium bicarbonate and sulphuric acid
 - (D) Carbon monoxide

4. The least count of universal vernier caliper is :

(A) 0.1 mm	(B) 0.01 mm
(C) 0.02 mm	(D) 0.2 mm

5. Which of the following is used for securing a tightened nut in position?
 - (A) Key
 - (B) Cotter pin
 - (C) Snap ring
 - (D) Gasket

6. Which file has minimum space between their teeth?
 - (A) Rough files
 - (B) Smooth files
 - (C) Coarse files
 - (D) Bastard files

7. The cross-sectional shape of an allen key is :
 - (A) Square
 - (B) Pentagon
 - (C) Hexagon
 - (D) Octagon

8. Which of the following is not a precision measuring instrument?
(A) Outside micrometer (B) Dial indicator
(C) Vernier height gauge (D) Universal surface gauge
9. A round rod which does not have a head, and has external threads at both ends is called :
(A) Stud (B) Bolt
(C) Nut (D) Screw
10. Snips are used for :
(A) Cutting away thick layer of metal (B) Cutting sheet metal
(C) Cutting wooden blocks (D) Cutting external threads
11. The ratio of work output of an engine to the fuel energy burnt is called :
(A) Mechanical efficiency (B) Volumetric efficiency
(C) Thermal efficiency (D) Compression ratio
12. The power available at the engine's flywheel is called :
(A) Indicated horse power (B) Brake horse power
(C) Frictional horse power (D) Overall efficiency
13. Opening and closing of the valves in relation to the position of piston and flywheel is called :
(A) Valve lead (B) Valve lag
(C) Valve overlap (D) Valve timing
14. The type of piston pin generally used in heavy duty diesel engine is :
(A) Fully floating piston pin (B) Semi floating piston pin
(C) Set screw type piston pin (D) Three-quarter type piston pin
15. "Scuffing" occurs when :
(A) Piston slides against cylinder without lubrication
(B) Piston clearance is excessive
(C) Piston rings are worn out
(D) Cylinder liner is worn out
16. When the piston is at BDC, volume of the cylinder above the piston is?
(A) Clearance volume (B) Swept volume
(C) Total volume (D) Compression ratio

17. The number of main journals on a six-cylinder engine's crankshaft will be :
(A) Either 4 or 6 (B) Either 5 or 7
(C) Either 6 or 8 (D) Either 6 or 12
18. In a diesel engine, the fuel gets ignited by :
(A) Fuel injector (B) Electric spark
(C) Heater plug (D) Heat of compressed air
19. Force \times Distance =
(A) Power (B) Torque
(C) Work (D) Energy
20. Which process gives the engine cylinder a cross-hatch pattern?
(A) Drilling (B) Boring
(C) Facing (D) Honing
21. Which of the following cannot be a reason for engine overheating?
(A) Worn out thrust bearing (B) Lack of coolant
(C) Thermostat valve stuck closed (D) Late ignition timing
22. If you notice the presence of engine oil inside the radiator filler neck, the reason can be :
(A) Defective radiator pressure cap (B) Damaged cylinder head gasket
(C) Defective thermostat valve (D) Defective oil pump
23. While reverse flushing a radiator, the flushing gun is connected to the :
(A) Upper tank (B) Lower tank
(C) Water pump inlet (D) Thermostat housing
24. Excessive engine oil consumption can be happened if :
(A) Viscosity of the oil is excessive
(B) Oil passages in the engine is blocked
(C) Piston rings are worn out
(D) Pressure relief valve is stuck closed
25. The force which retards the motion of one body, in contact with another body is called :
(A) Friction (B) Adhesion
(C) Cohesion (D) Torsion

26. The positive crankcase ventilation system helps :
- (A) To redirect the blow by gases in the crankcase to inlet manifold
 - (B) To reduce the atmospheric pollution caused by the engines
 - (C) To prevent oil dilution and sludge formation
 - (D) All of the above
27. Which of the following is not a function of fuel injection system in the diesel engines?
- (A) To atomise the fuel
 - (B) To supply the fuel into the cylinder in metered quantity
 - (C) To prepare air-fuel mixture in the inlet manifold for combustion
 - (D) To pressurise the fuel so that it can enter into the compressed air in the cylinder
28. When the helix and spill port of an inline type FIP comes to coincide, what will happen?
- (A) Suction of fuel into the barrel
 - (B) Medium fuel delivery
 - (C) Maximum fuel delivery
 - (D) No fuel delivery
29. In an automobile, the solenoid switch is a part of :
- (A) Starting system
 - (B) Ignition system
 - (C) Charging system
 - (D) Lighting system
30. Spark plug 'reach' means :
- (A) The heat range of the spark plug
 - (B) The length of central electrode
 - (C) The length of the threaded portion of the spark plug shell
 - (D) The gap between the spark plug terminals
31. The longitudinal distance between the centres of the front and rear axles is called :
- (A) Turning radius
 - (B) Axle ratio
 - (C) Wheel track
 - (D) Wheel base
32. The metal used for body building of automobiles is generally :
- (A) Cast iron
 - (B) Steel
 - (C) Copper
 - (D) Aluminium
33. The chassis frame of vehicles is narrow at the front, because :
- (A) It gives smaller turning radius to the vehicle
 - (B) Number of tyres is less at the front
 - (C) Weight of the vehicle is less at the front
 - (D) It helps to reduce the weight of the frame

34. The type of car in which the driver's cabin is separated from the rear compartment by using a window is called :
- (A) Sedan (B) Coupe
(C) Limousine (D) Station wagon
35. The 'immobiliser' is :
- (A) A mobile phone charging device used in cars
(B) An electronic security device for vehicles
(C) An automatic tyre changing equipment.
(D) A trailer attached to the carriage vehicles
36. Seat belts used in cars are generally :
- (A) Two point type (B) Three point type
(C) Four point type (D) Five point type
37. The crumple zone is :
- (A) A garage, where the unserviceable vehicles are kept
(B) The space inside the luggage compartment of the vehicle
(C) The area which cannot be seen by the driver
(D) The part of the vehicle, designed to absorb the energy during a collision
38. The term 'Gross Vehicle Weight' indicates :
- (A) The maximum operating weight of a vehicle without trailer
(B) Weight of the vehicle without passengers
(C) Weight of the vehicle when its body is removed
(D) Weight of the passengers a vehicle can carry
39. "ABS" stands for :
- (A) Auxiliary Brake System
(B) Antiroll Brake System
(C) Antilock Brake System
(D) All wheel Brake System
40. When the child lock is ON?
- (A) The door can be opened from inside
(B) The door cannot be opened from outside
(C) All the doors will be closed automatically
(D) The door cannot be opened from inside

41. In tubeless tyres :
- (A) Air is filled in a tube inside the tyre
 - (B) Air is filled in between rim and the tyre
 - (C) No air is required
 - (D) Liquid is filled in place of air
42. Tyre rotation is carried out for :
- (A) Reconditioning of a damaged tyre
 - (B) Equalising the wear of all the tyres in a vehicle
 - (C) Free movement of the tyres
 - (D) Removing impurities from the tyre
43. Tread Wear Indicator is located :
- (A) On the tyre, where the tread meets the side wall
 - (B) On the dashboard of the vehicle
 - (C) At the wheel alignment shops
 - (D) On the front bumper of the vehicle
44. In a tyre of '9.00-20- 12PR' size, "20" indicates that :
- (A) Tyre width is 20 inches
 - (B) Tyre pressure is 20 kg/cm²
 - (C) Rim diameter is 20 inches
 - (D) Maximum speed limit is 200 kmph
45. The leaf springs are supported on the axles by means of :
- (A) V-belt
 - (B) Spring retainer
 - (C) Helper springs
 - (D) U-bolt
46. The 'Ackerman mechanism' is related to :
- (A) Air-conditioning system
 - (B) Transmission system
 - (C) Steering system
 - (D) Lubrication system
47. In heavy vehicles, the gears of differential assembly are lubricated with :
- (A) SAE 40 oil
 - (B) SAE 90 oil
 - (C) SAE 140 oil
 - (D) Grease
48. Which of the following is not a part of differential assembly?
- (A) Crown wheel
 - (B) Sun gear
 - (C) Pinion
 - (D) Universal joint

49. The air suspension system is commonly employed in :
- (A) Heavy buses and trucks (B) Light commercial vehicles
(C) Stationary engines (D) Motor cycles
50. The electrolyte used in a lead-acid battery is :
- (A) Hydrochloric acid (B) Sulphuric acid
(C) Nitric acid (D) Lead Peroxide
51. The facing of the clutch friction plate is made of :
- (A) Asbestos (B) Rubber
(C) Steel (D) Cast iron
52. The clutch cover is bolted to the :
- (A) Pressure plate (B) Crankcase
(C) Gearbox (D) Flywheel
53. In a modern automobile gearbox, most of the gears are :
- (A) Helical gears (B) Spur gears
(C) Spiral bevel gears (D) Herringbone gears
54. In gear systems, as the speed decreases :
- (A) Torque decreases (B) Torque increases
(C) Torque remains the same (D) Torque comes to zero
55. A transfer case is used in :
- (A) All automobiles
(B) Vehicles with automatic transmission
(C) Four wheel drive vehicles
(D) Rear wheel drive vehicles
56. To stop a running vehicle :
- (A) All the wheels require equal braking force
(B) All the wheels require different braking force.
(C) More braking force is required at the front wheels
(D) More braking force is required at the rear wheels
57. A tandem master cylinder has :
- (A) One piston (B) Two pistons
(C) Three pistons (D) No pistons

58. "R 134 a" is :
(A) A brake fluid (B) A coolant
(C) A lubricant (D) A refrigerant
59. The parking brake employed in cars are usually operated :
(A) Mechanically (B) Hydraulically
(C) Electrically (D) Pneumatically
60. In the air brake system, the valve which regulates the line air pressure is :
(A) Brake valve (B) Delivery valve
(C) Thermostat valve (D) Unloader valve
61. Which one has negative temp co-efficient of resistance?
(A) Carbon (B) Copper
(C) Aluminium (D) Iron
62. The electrical conductor used in battery is :
(A) Gas (B) Aluminium
(C) Silver (D) Water
63. SI unit of charge is :
(A) Volt (B) ESU of charge
(C) Farad (D) Coulomb
64. A battery is a source of :
(A) AC or DC Voltage (B) 1 Φ AC voltage
(C) DC Voltage (D) 3 Φ AC Voltage
65. Which one of the following instruments is used for measuring specific gravity of electrolyte?
(A) Hydro meter (B) Barometer
(C) Volt meter (D) Lactometer
66. For silicon PN junction, the barrier potential is about :
(A) 1.7 V (B) 0.001 V
(C) 0.07 V (D) 0.7 V
67. What is the EMF of a fully charged lead acid cell?
(A) 2 V (B) 1.8 V
(C) 2.1 V (D) 1.5 V

68. The total value of two resistance is $25\ \Omega$ when connected in series, and $6\ \Omega$ W connected in parallel. Find the value of two resistance :
- (A) $10\ \Omega$, $15\ \Omega$ (B) $12\ \Omega$, $13\ \Omega$
(C) $20\ \Omega$, $5\ \Omega$ (D) $19\ \Omega$, $6\ \Omega$
69. The commercial unit of Electrical energy is :
- (A) Ampere hour (B) Kilo watt hour
(C) Watt- hour (D) Joule
70. How many number of positive and negative plates are placed in a 9 plate lead acid cell?
- (A) 4 positive plate and 4 negative plate
(B) 5 positive plate and 4 negative plate
(C) 5 positive plate and 5 negative plate
(D) 4 positive plate and 5 negative
71. A permanent magnet moving coil instrument will read :
- (A) Only AC quantities (B) Both AC and DC quantities
(C) Only DC quantities (D) Pulsating quantities
72. What is the working principle of a two winding transformer?
- (A) Self-induction (B) Mutual induction
(C) Principe of DC Motor (D) Lenz's law
73. Which part of the PMMC instrument produce eddy current damping?
- (A) Moving coil (B) Aluminium former
(C) Permanent magnet (D) Soft iron cylindrical core
74. The process of adding impurities to a semiconductor is known as :
- (A) Sintering (B) Drifting
(C) Doping (D) Intrusion
75. A four pole 1200 RPM alternator will generate emf at a frequency of :
- (A) 25 Hz (B) 40 Hz
(C) 50 Hz (D) 60 Hz

76. The most suitable motor for electric traction is :
- (A) DC shunt motor (B) DC compound motor
(C) DC Series motor (D) None of the above
77. The quantity of scale on the dial of the Multimeter at the top most is :
- (A) DC current (B) AC current
(C) AC voltage (D) Resistance range
78. The dielectric strength of insulation is called :
- (A) Barriers voltage (B) Breakdown down voltage
(C) Peak inverse voltage (D) Peak voltage
79. In the case of pure metallic conductors the resistance is :
- (A) Inversely proportional to the sp: resistance
(B) Directly proportional to the cross sectional area
(C) Directly proportional to the length
(D) None of the above
80. When the disc of an energy meter is rotating even without connecting any Load the error is called?
- (A) Creeping error (B) Phase error
(C) Friction error (D) Parallax error
81. The Indus site Kalibangan belongs to :
- (A) Punjab (B) Haryana
(C) Gujarat (D) Rajasthan
82. The Chalcolithic Jorwe culture flourished between the age :
- (A) 1400 – 700 BC (B) 1300 – 600 BC
(C) 1800 – 2400 BC (D) 1600 – 700 BC

83. Tolkapiyam is a work on :
 (A) State craft (B) Ayurveda
 (C) Grammar (D) None of these
84. Kautilya thought to be the chief minister of :
 (A) Ashoka (B) Chandraguptha
 (C) Samudragupta (D) Rajendra Chola
85. Justice party was founded at :
 (A) Calcutta (B) Bombay
 (C) Madras (D) None of these
86. The Hindusthan Socialist Republican Army (HSRA) was founded at :
 (A) Amritsar (B) Delhi
 (C) Lukhnow (D) Chandigarh
87. The famous quit India resolution was passed by the AICC session held at :
 (A) Lahore (B) Madras
 (C) Calcutta (D) Bombay
88. The Anamudi peak situated in :
 (A) Kollam district (B) Pathanam Thitta district
 (C) Idukki district (D) Kottayam district
89. 'Kerala – A portrait of the Malabar Coast' is written by :
 (A) George wood cock (B) Roll and E. Miller
 (C) Robin Jeoffrey (D) R.C. Brizton
90. The ancient Kerala port named as Rajendra Chola Pattanam is :
 (A) Barace (B) Vizhinjam
 (C) Calicut (D) Muzris
91. Chattampi Swamikal attained 'Samadhi' at :
 (A) Varkala (B) Sivagiri
 (C) Kannanmula (D) Panmana

92. The founder of Atmavidya Sangham was :
(A) Vaikunta Swami (B) Kumara Guru
(C) Swami Vagbhatananda (D) None of these
93. 'Al Islam', an Arabic – Malayalam monthly was published by :
(A) Makthi Thangal (B) K.M. Moulavi
(C) Muhammad Abdul Rahiman (D) Vakkom Abdulkhadir Moulavi
94. Sadhu Jana Paripalana Yogam was founded in the year :
(A) 1907 (B) 1909
(C) 1911 (D) 1918
95. 'Nalagamam' deals with :
(A) Astronomy (B) History
(C) Medicine (D) Grammar
96. 'Operation Sakti', the second Neuclear experiment of India, led by :
(A) Dr. K. Radha Krishnan (B) Dr. G. Madhavan Nair
(C) Dr. A.P.J. Abdul Kalam (D) None of these
97. 'Wandering in many worlds' is a book written by :
(A) Dr. Sasi Tharoor (B) Kuldip Nayyar
(C) M.J. Akbar (D) Justice V.R. Krishna Ayer
98. The film P.K. is directed by :
(A) Amir Khan (B) Rajkumar Hirani
(C) Sidharth Roy Kapur (D) Vinod Chupra
99. The first Chairman of Neethi Ayog :
(A) Aravind Panagariya (B) Montesingh Ahluwaliya
(C) Arun Jaitley (D) Narendra Modi
100. Name the top wicket scorer in test cricket :
(A) Muralidharan (B) Kapil Dev
(C) Anil Kumble (D) Wazim Akram
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