

064/2024

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. Which is the reason to decrease the volumetric efficiency of an engine?
(A) Low temperature (B) High temperature
(C) Excessive back pressure (D) Less load
2. When does a fresh charge escapes from the petrol engine exhaust?
(A) During valve lead (B) During valve overlap
(C) During valve open (D) During valve lag
3. Injection timing of the diesel in a distributor type fuel injection pump is controlled by :
(A) Changing plunger stroke
(B) Changing the speed of the rotor
(C) Adjust Control Rack
(D) Rotating the cam ring
4. Technician A says the Diesel engine compresses air alone in the compression stroke. Technician B says the fuel is ignited by the heat of compression. Who is right?
(A) A only (B) Both A and B
(C) B only (D) Neither A nor B
5. Which action the spindle only move up and down in feed pump?
(A) Idling action (B) Partial action
(C) Normal action (D) Pumping action
6. In a six cylinder engine, the power impulse occurs after 'x' degrees of crank shaft rotation. Where 'x' is :
(A) 90 (B) 120
(C) 240 (D) 360

7. The cross-sectional area of one cylinder of an engine multiplied by its stroke is called :
- (A) Combustion volume (B) Clearance volume
(C) Swept volume (D) Engine Capacity
8. Scavenging is done for the following purpose :
- (A) fuel consumption (B) power output
(C) speed (D) oil pressure
9. The two firing orders used on four cylinder in-line engines are :
- (A) 1-3-4-2 and 1-4-2-3 (B) 1-3-2-4 and 1-2-4-3
(C) 1-4-3-2 and 1-3-2-4 (D) 1-2-4-3 and 1-3-4-2
10. If the temperature of intake air in internal combustion engine increases, then its efficiency will :
- (A) remain same (B) increase
(C) decrease (D) zero
11. A dish in the piston head is employed to :
- (A) Decrease piston weight (B) Provide valve clearance
(C) Adjust piston displacement (D) Control compression ratio
12. Which is used to determine the stroke of an engine?
- (A) Cycle (B) Throw
(C) Dia of piston (D) Length of connecting rod
13. All of these statements about engine oil pumps are true except :
- (A) The oil pump may be driven off the front of the crankshaft
(B) A calibrated spring holds the oil pressure relief valve open
(C) The oil pump may be rotor type or gear type
(D) The pressure relief valve prevents excessive oil pump pressure

14. Excessive back-and-forth movement of the crankshaft is prevented by a :
- (A) sleeve bearing (B) harmonic balancer
(C) thrust bearing (D) shaft journal
15. The lifetime of a cylinder block can be increased by using :
- (A) heat treatment (B) phosphate coating
(C) chromium coating (D) liner
16. Which measuring instrument used to check the fly wheel face out?
- (A) Dial indicator (B) Compression gauge
(C) Outside micrometer (D) Feeler gauge
17. On the compression stroke the piston rings are pressed against :
- (A) top of groove (B) inner side of groove
(C) bottom of groove (D) None of the above
18. Maximum permissible ovality in a cylinder is usually :
- (A) 0.1 mm (B) 0.01 mm
(C) 0.5 mm (D) 1.0 mm
19. In the Cam, the distance between the base circle and the nose is called :
- (A) Flank (B) Lobe
(C) Dwell (D) Lift
20. What is the type of hardening done on crankshaft?
- (A) Induction hardening (B) Case hardening
(C) Surface hardening (D) Curve hardening
21. In bellows type thermostat valve, the valve opening is depending on :
- (i) Coolant temperature
(ii) Vapour pressure in the bellows
(iii) Coolant pressure
- (A) Only (ii) (B) Only (i) and (ii)
(C) Only (ii) and (iii) (D) All of the above (i), (ii) and (iii)

27. Which type of lubrication system used in racing car engines?
- (A) Petrol system (B) Splash system
(C) Pressure system (D) Dry-sump system
28. Which one of the following types of oil pump has an advantage of a continuous oil flow?
- (A) Gear pump (B) Crescent type gear pump
(C) Rotor pump (D) Vane pump
29. Engine blow-by gas increases with :
- (A) Engine speed (B) Wear of cylinder bore
(C) Wear of pistons and rings (D) All of the above
30. In a multi-grade lubricating oil SAE 10W/30, the numbers 10 and 30 are representing :
- (A) Low temperature ratings and low oil viscosity
(B) High temperature ratings and high oil viscosity
(C) Both (A) and (B)
(D) Viscosity ratings
31. What is the most likely cause of an engine misfire?
- (A) Faulty ignition system (B) Faulty starting system
(C) Faulty charging system (D) None of these
32. The warpage of cylinder head is checked with a :
- (A) Metal rule (B) Vernier caliper
(C) Micrometer (D) Dial gauge
33. For checking the alignment of the crankshaft, the best method is to place it :
- (A) On V-blocks (B) On its ends
(C) On lathe centers (D) On a plane smooth table

34. What does white smoke from the exhaust typically indicates?
- (A) Overheating
 - (B) Lean air-fuel mixture
 - (C) Coolant or water vapour in combustion chamber
 - (D) Burning of lubricating oil in the engine cylinder
35. Which of the following can indicate a potential engine problem and require immediate attention?
- (A) Check engine light illuminated
 - (B) Slight decrease in fuel efficiency
 - (C) Engine running slightly warmer than usual
 - (D) Occasional knocking sound from the engine
36. What is the significance of a tapping or tickling noise from the engine?
- (A) Indicates worn valve lifters or other valve train issues
 - (B) Worn out piston rings
 - (C) Worn out timing belt
 - (D) Suggests a loose exhaust manifold pipe
37. If a worn main bearing requires replacement, you should replace :
- (A) Only the damaged main bearing
 - (B) Adjacent connecting rod bearings
 - (C) All camshaft bearings
 - (D) All main bearings
38. Thrust - bearing wear will cause excessive :
- (A) Crankshaft bending
 - (B) Crankshaft vibration
 - (C) Crankshaft endplay
 - (D) Crankshaft speed
39. To check piston-ring end gap, install the ring :
- (A) In the piston groove
 - (B) At the bottom of the cylinder
 - (C) Below the ring ridge
 - (D) Above the ring ridge

40. In the pin fits too loosely in the piston :
- (A) Install the new piston and pin set
 - (B) Ream the piston bore and install a bushing
 - (C) Install an undersized pin
 - (D) Install new compression rings
41. The torque transmission by clutch depends upon the :
- (A) Size of the clutch plate
 - (B) Coefficient of friction
 - (C) Spring pressure
 - (D) All of these
42. The coefficient of friction for the clutch facing is approximately :
- (A) 0.1
 - (B) 0.4
 - (C) 0.8
 - (D) 1.2
43. In the fluid coupling, the vortex flow is maximum when the slip is :
- (A) 20%
 - (B) 50%
 - (C) 75%
 - (D) 100%
44. The purpose of the fluid coupling is to act as a :
- (A) Synchronizing device
 - (B) Automatic gear changer
 - (C) Flexible power transmitting coupling
 - (D) None of these
45. Quality of diesel fuels is denoted as :
- (A) Cetane No.
 - (B) SAE No.
 - (C) API No.
 - (D) Octane No.
46. Iso octane :
- (A) Has octane number of 0
 - (B) Has octane number of 50
 - (C) Has octane number of 100
 - (D) None of these

47. To reduce the possibility of knock in CI engines, the first elements of fuel an air should have :
- (A) High temperature (B) High density
(C) Short delay (D) All of these
48. Stoichiometric air fuel ratio of petrol is roughly :
- (A) 50 : 1 (B) 25 : 1
(C) 14.7 : 1 (D) 1 : 1
49. Economizer is used to provide enriching mixture during :
- (A) Starting (B) Idling
(C) Cruising (D) Full throttle operation
50. The compression ratio of alcohol fuel lies between :
- (A) 11 : 1 to 13 : 1 (B) 7 : 1 to 9 : 1
(C) 5 : 1 to 7 : 1 (D) None of these
51. A fuel of an octane number rating of 75 matches in knocking intensity as a mixture of :
- (A) 75% iso-octane and 25% normal heptane
(B) 75% normal heptane and 25% iso octane
(C) 75% petrol and 25% diesel
(D) 75% diesel and 25% petrol
52. Hydrogen can be used in S.I. engines by :
- (A) Manifold induction
(B) Direct introduction of hydrogen into the cylinder
(C) Supplementing gasoline
(D) All of these
53. The pump outlet pressure should be approximately :
- (A) 3 kPa (B) 30 kPa
(C) 100 kPa (D) 300 kPa

54. The specific gravity of diesel is about :
- (A) 0.65 (B) 0.75
(C) 0.85 (D) 0.95 hat
55. What is the sequence of fluid circulation in torque converter?
- (A) Impellor – Stator – Turbine (B) Turbine – Stator – Impellor
(C) Impellor – Turbine – Stator (D) Stator – Impellor – Turbine
56. The probable cause for gear jumps out at mesh is :
- (A) Weak spring or fork rod
(B) Flywheel housing and gear box out at alignment
(C) Worn out teeth of sleeve or gears
(D) Any of these
57. The limited slip differential (LSD) mechanism causes in action when?
- (A) Driving on bumpy roads
(B) One tyre encounters a slippery section of roads
(C) When cornering at high speed
(D) All of these
58. In carburettors, the top of the fuel jet with reference to the petrol in the float chamber :
- (A) is kept at same level
(B) is kept at slightly higher level
(C) is kept at slightly lower level
(D) varies from situation to situation
59. At very low temperatures the ice tends to form in the carburettor in the :
- (A) Air cleaner (B) Venturi
(C) Idle jet (D) Float
60. The main metering system of the carburettor controls the fuel feed for :
- (A) Cruising (B) Full throttle operations
(C) Both (A) and (B) (D) None of these

61. In the given tyre specification, P195/65 R15 89H which number indicates the aspect ratio of tyre?
- (A) 195 (B) 65
(C) 15 (D) 89
62. The grooves that molded into the ribs of tyre treads are termed as :
- (A) carcass (B) ply
(C) bead (D) sipes
63. The metal rod running between the opposite upper or lower control arms, for reducing rolling is called :
- (A) tie rod (B) torsion bar
(C) stabilizer rod (D) drag link
64. Progressive rate coil spring means the spring with :
- (A) variable wire diameter, cylindrical shape and equally spaced coils
(B) constant wire diameter, cylindrical shape and unequally spaced coils
(C) constant wire diameter, cylindrical shape and equally spaced coils
(D) variable wire diameter, conical shape and equally spaced coils
65. The possible cause of vehicle sagging on one side is :
- (A) seized shackle pin (B) lack of lubrication
(C) loose bushes (D) broken suspension spring
66. The over inflation of tyre causes :
- (A) rapid wear at tyre shoulders (B) bald spot wear of tyre
(C) rapid wear at tyre centre (D) wear on one side of tyre
67. Which statement is false about metering valve?
- (A) when the brakes are released, metering valve is open
(B) metering valve is usually used in vehicle with front disc brakes and rear drum brakes
(C) metering valve avoids front disc wheel lock up even during light braking
(D) none of the above

68. Brake binding may be caused by :
- (A) leakage in wheel cylinder
 - (B) blocked by pass port in master cylinder
 - (C) low level of brake fluid in master cylinder
 - (D) air entering in brake system
69. The component of air brake system which convert the pressure energy of compressed air into mechanical energy is :
- (A) Brake valve
 - (B) Unloader valve
 - (C) Brake chamber
 - (D) Reservoir
70. Which of the following statement is false about engine exhaust brake?
- (A) Engine exhaust brakes is used for stop the vehicle while descending downhill gradient.
 - (B) Engine exhaust brakes improve fuel economy.
 - (C) This system uses a valve to shut off the exhaust manifold.
 - (D) This brake is very effective below the vehicle speed of 40 km/hour.
71. What is the necessary condition for a conductor to obey Ohm's law?
- (A) Temperature of the conductor remains constant
 - (B) Pressure around the conductor remains constant
 - (C) Resistance of conductor remains constant
 - (D) Current through the conductor should be constant
72. Which of the following statement is false about battery?
- (A) For recharging, connect positive and negative terminals of battery to respective terminal of the battery charger.
 - (B) For charging several batteries, these batteries are connected parallel to each other.
 - (C) Battery capacity is expressed in ampere hour rating.
 - (D) Specific gravity of electrolyte in fully charged lead acid battery is in the range of 1.260 to 1.280.

73. Which of the following does not cause the deterioration of the plates of lead acid battery?
- (A) Low specific gravity of electrolyte
 - (B) Freezing of electrolyte
 - (C) Very high charging rate
 - (D) Very high discharge rate
74. The part of lead acid battery which hold the active material is :
- (A) Separator
 - (B) Grid
 - (C) Connector lug
 - (D) Container
75. Which of the following statement is false about alternator?
- (A) Alternator uses diode rectifiers to convert ac to dc
 - (B) Alternator circuit uses cut off relay
 - (C) No current regulator is used in alternator
 - (D) Alternator charges the battery at idling rpm
76. Which of the following statement is false about DC generator?
- (A) Commutator and brushes are used to rectification of ac to dc
 - (B) It has low output to weight ratio
 - (C) Current regulator must be required in the circuit
 - (D) For same output, weight of dc generator is less compared to alternator
77. The material filled inside the bulb in halogen head light is :
- (A) Sodium vapor
 - (B) Iodine vapor
 - (C) Argon
 - (D) Tungsten
78. The reflector used for sealed beam head light is usually coated with :
- (A) Vaporized zinc
 - (B) Vaporized silver
 - (C) Vaporized aluminum
 - (D) Tungsten vapor

79. Which of the following is not a cause for the starter motor doesn't start and the dash board lights dim heavily?
- (A) Weak battery
 - (B) The circuit is open somewhere
 - (C) Starter motor field or armature winding may be ground
 - (D) Excessive friction on engine
80. The charge indicator light is ON during engine is running means :
- (A) Generator is charging the battery
 - (B) Battery is fully charged
 - (C) Generator is not charging the battery
 - (D) Battery is physically damaged
81. Which component of battery coil ignition system connect and disconnect primary circuit from the battery?
- (A) Ignition switch
 - (B) Ignition coil
 - (C) Distributor
 - (D) CB point
82. Which component of Ignition system prevent arcing between CB points?
- (A) Ignition switch
 - (B) Ignition coil
 - (C) HT cable
 - (D) Condenser
83. Which ignition advance mechanism consist of pair of weight attached to distributor shaft?
- (A) Centrifugal advance system
 - (B) Vaccum advance system
 - (C) Electronic advance system
 - (D) Manual ignition advance system
84. Which of the following is the "Wrong statement" regarding distributor less ignition system?
- (A) This engine has no distributor
 - (B) Two separate plugs are ignited at the same time
 - (C) Two ignition coils for a 4-cylinder engine
 - (D) Each ignition coil is a true step down transformer

85. When did the maximum blow by gas flow happens through PCV valve?
- (A) Idling (B) Cruising
(C) Accelerating (D) Always
86. Which reducing catalyst used in 3-way cat con for the conversion of NO_x?
- (A) Rhodium (B) Platinum
(C) Palladium (D) Cerium
87. Which type of muffler use anti-noise to eliminate exhaust noise?
- (A) Variable flow exhaust muffler
(B) Electronic muffler
(C) Reverse flow muffler
(D) Baffle type muffler
88. How particulates emission caused in CI engines?
- (A) Lack of turbulence and lack of oxygen
(B) Complete combustion of air fuel mixture
(C) Under high temperature and pressure of combustion
(D) Incomplete combustion of rich air fuel mixture
89. Which tool is used for gripping and turning pipes of varying diameters?
- (A) Stillson pipe wrench (B) Torque wrench
(C) Impact wrench (D) Socket spanner
90. In industry, the prohibition sign means?
- (A) Shows what must be done
(B) Shows it must not be done
(C) Warns of hazards or danger
(D) Gives information of safety provision

91. Which tool is used to tighten or loosen screws having internal hexagon sockets?
- (A) Plier (B) Socket spanner
(C) Allen key (D) Pipe wrench
92. What is the shape of “warning sign”?
- (A) Circle shape sign
(B) Rectangle shape sign
(C) Triangle shape sign
(D) Red circle shape sign
93. What is the function of ignition coil?
- (A) Step down high voltage to low voltage
(B) Connect primary circuit to ignition switch
(C) Disconnect secondary winding to distributor
(D) Step up low voltage to high voltage
94. EVAP canister outlet connected to :
- (A) Exhaust manifold (B) Inlet manifold
(C) Catalytic converter (D) Fuel tank
95. What happens when the spark plug runs too cold?
- (A) Electrode gap become wider
(B) High voltage surge will leak across sooty deposit formation
(C) Electrodes will burn more rapidly
(D) Electrodes will wear more
96. Which is the date of implementation of Bharat stage III vehicle?
- (A) 01.04.2018 (B) 01.04.2010
(C) 01.04.2016 (D) 01.04.2020

97. Which type of magneto ignition system, the armature winding affected with centrifugal stresses?
- (A) Rotating armature type
 - (B) Rotating magnet type
 - (C) Polar inductor type
 - (D) Solid state ignition
98. Which of the following statement is WRONG regarding Air injection system?
- (A) NO_x in the exhaust completely removed.
 - (B) Fresh air sent into the exhaust manifold.
 - (C) CO emission rate goes on decreasing.
 - (D) Improved oxidation of HC in exhaust.
99. Which of the following Ignition system trouble lead to engine overheating?
- (A) Defective condenser
 - (B) Too much ignition retard
 - (C) Weak battery
 - (D) CB point may be worn out
100. What is the reason for rapid burning of CB points?
- (A) Excess spark plug gap
 - (B) Weak battery
 - (C) Faulty distributor rotor
 - (D) Too much primary current
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