1. In 4 stroke petrol engine the spark comes during the _____

   (1) Beginning of the suction stroke
   (2) End of the compression stroke
   (3) At the power stroke
   (4) None of these

2. Compression ratio in the diesel engine is _____

   (1) 7:1 to 12:1
   (2) 16:1 to 20:1
   (3) 22:1 to 24:1
   (4) None of the above

3. The upper most ring on a piston is usually plated with _____

   (1) Steel
   (2) Cast iron
   (3) Aluminium
   (4) Chromium

4. An indication of ignition quality of diesel fuel is given by _____

   (1) Detonation
   (2) Octane number
   (3) Pre ignition
   (4) Cetane number

5. The type of wheel which cannot be used with tubeless tyre is _____

   (1) Disc wheel
   (2) Light alloy wheel
   (3) Wire wheel
   (4) Composite wheel

6. In a torque converter maximum torque multiplication occurs at _____

(1) Stop
(2) Medium speed
(3) Low Speed
(4) High Speed

7. In ventilation and air conditioning system a pressure difference is created by _____

(1) Thermostat
(2) Flaps
(3) Plenum
(4) None of the above

8. Maximum allowable hydrocarbons in the car emission are approximately _____

(1) 10ppm
(2) 1000ppm
(3) 100ppm
(4) 5000ppm

9. With reference to Mechatronics which statement is true _____

(1) Mechatronics is the synergistic integration of mechanical, electrical and electronics engineering with intelligent computer control.
(2) Mechatronics is the confluence of traditional design methods with sensors and instrumentation technology embedded real time micro processor.
(3) Mechatronics is the extension and completion of mechanical system with sensors and microcomputer.
(4) All of the above.

10. Identify the gaseous fuel _____

(1) Methane from coal mines
(2) Gases derived from waste and biomass
(3) Liquefied petroleum gas
(4) All the above

11. Alternative power train includes _____

(1) IC engines
(2) Hydrogen fuel cells
(3) Compressed air
(4) All the above

12. This safety standard is not included in Indian transport safety standard _____

(1) Safety belt
(2) Safety requirements for side door of passenger
(3) Booster seats
(4) (2) and (3) but not (1)

13. The reference fuels for knock rating of spark ignition engines would include _____

(1) iso-octane and alpha-methyl naphthalene
(2) normal octane and aniline
(3) iso-octane and normal hexane
(4) normal heptane and iso-octane

14. In a four stroke cycle, the minimum temperature inside the engine cylinder occurs at the _____

(1) Beginning of suction stroke
(2) End of suction stroke
(3) Beginning of exhaust stroke
(4) End of exhaust stroke

15. The exhaust valve in a four stroke cycle petrol engine _____

(1) Opens at 50^0 before bottom dead centre and closes at 15^0 after top dead centre
(2) Opens at bottom dead centre and closes at top dead centre
(3) Opens at 50^0 after bottom dead centre and closes at 15^0before top dead centre
(4) May open and close anywhere

16. The motion of the cam is transferred to the valves through _____

(1) Pistons
(2) Rocker arms
(3) Camshaft pulley
(4) Valve stems

17. Which of the following symptom is caused as a result of brake disc run out ?

(1) Ineffectiveness of the brakes
(2) Judder during braking
(3) Localized wearing of the brake pads
(4) Rapid wearing of the brake pads

18. If the engine coolant leaks into the engine oil, then engine oil _____

(1) Appears milky
(2) Becomes foamy
(3) Turns black
(4) None of these

19. Pre-ignition is caused by the spontaneous combustion of the mixture before the end of the compression stroke, and is due to _____

(1) Cylinder walls being too hot
(2) Overheated spark plug points
(3) Red hot carbon deposits on cylinder walls
(4) Any one of these

20. The objective of supercharging the engine is _____

(1) To reduce mass of the engine per brake power.
(2) To reduce space occupied by the engine.
(3) To increase the power output of an engine when greater power is required.
(4) All of the above.

21. All of the following are characteristics of DIESEL Engine EXCEPT _____

(1) They are more durable than Gasoline engines.
(2) They operate at lower compression ratio than Gasoline engines.
(3) All Diesel engines are fuel injected.
(4) These engines convert a higher percentage of fuel into useful power.

22. It is necessary to maintain the valve clearances as they _____

(1) Reduce the resistance to sliding that occurs between the cam and the tappet.
(2) Allow for lengthening of the valves owing to the heat of combustion.
(3) Increase the speed at which the valves move up and down.
(4) Make the crankshaft turn smoothly.

23. Incorrect steering axis inclination (S.A.I.) causes _____

(1) Tendency to assume toe-out orientation
(2) Generation of a braking effect at tight corners
(3) Poor recovery of the steering wheel after making a turn
(4) The vehicle to pull to the side of lesser inclination

24. The compensating jet in a carburettor supplies almost constant amount of petrol at all speeds because the _____

(1) Jet area is automatically varied depending on the suction.
(2) The flow from the main jet is diverted to the compensating jet with increase in speed.
(3) The diameter of the jet is constant and the discharge coefficient is invariant.
(4) Flow is produced due to the static head in the float chamber.

25. The effective inhibitor of pre-ignition is _____

(1) Alcohol
(2) Water
(3) Lead
(4) None of these

26. The pressure inside the cylinder is _____ the atmospheric pressure during the exhaust stroke.

(1) Equal to
(2) Below
(3) Above
(4) Twice

27. The torque available at the contact between driving wheels and road is known as _____

(1) Brake effort
(2) Tractive effort
(3) Clutch effort
(4) None of these

28. A traction control system (TCS) in automobiles controls the _____

(1) Vibrations on the steering wheel
(2) Engine power during acceleration
(3) Torque that is transmitted by the tyres to the road surface
(4) Stopping distance in case of emergency

29. Morse test can be conducted for _____

(1) Petrol engines
(2) Diesel engines
(3) Multi-cylinder engines
(4) All of these

30. The basic requirements of a good combustion chamber is _____

(1) Minimum turbulence
(2) Low compression ratio
(3) High thermal efficiency and power output
(4) Low volumetric efficiency

31. The injection pressure in a diesel engine is about _____

(1) 10 bar
(2) 100 bar
(3) 150 bar
(4) 500 bar

32. High speed compression engines operate on _____

(1) Otto cycle
(2) Diesel cycle
(3) Dual-combustion cycle
(4) All of these

33. In radial tyres _____

(1) One ply layer runs diagonally one way and another layer runs diagonally the other way
(2) All plies run parallel to one another and vertical to tyre bead
(3) Inner tubes are always used
(4) None of these

34. The oil pump is driven by the _____

(1) Camshaft
(2) Alternator shaft
(3) Crankshaft via drive belt
(4) Crankshaft directly

35. The main function of intake manifold is that it _____

(1) Promotes the mixture of air and fuel
(2) Reduces intake noise
(3) Cools the intake air to a suitable temperature
(4) Distributes intake air equally to the cylinders

36. The function of a distributor in a coil ignition system of I.C. engines is _____

(1) To distribute spark
(2) To distribute power
(3) To distribute current
(4) To time the spark

37. The firing order for an in-line four cylinder I.C. engine is _____

(1) 1-2-3-4
(2) 1-3-4-2
(3) 1-2-4-3
(4) 1-3-2-4

38. The frictional power (F.P.) is given by _____

(1) F.P. = B.P. ï I.P
(2) F.P. = I.P. ï B.P.
(3) F.P. = B.P. / I.P.
(4) F.P. = I.P. / B.P.

39. The effect of having excess camber is _____

(1) Excessive steering alignment torque
(2) Hard steering
(3) Too much traction
(4) Uneven tyre wear

40. If V_1 is the jet velocity and V_0 is the vehicle velocity, then the propulsive efficiency of a rocket is given by _____

(1) $\dfrac{2(V_0 / V_1)}{1 + (V_0 / V_1)^2}$

(2) $\dfrac{(V_0 / V_1)}{1 + (V_0 / V_1)^2}$

(3) $\dfrac{V_0}{(V_0 + V_1)}$

(4) $\dfrac{V_1}{(V_0 + V_1)}$

41. The aluminium alloy is used in cylinder blocks because _____

(1) It is lighter and have good heat dissipation characteristics
(2) Material cost is low
(3) It does not require any cylinder liners
(4) The piston is also made of aluminium alloy

42. In compression ignition engines, swirl denotes a _____

(1) Haphazard motion of the gases in the chamber
(2) Rotary motion of the gases in the chamber
(3) Radial motion of the gases in the chamber
(4) None of the above

43. The maximum propulsive efficiency of a turbo-jet engine is at a speed of _____

(1) 1000 km/h
(2) 2000 km/h
(3) 2400 km/h
(4) 3000 km/h

44. The knocking in spark ignition engines can be reduced by _____

(1) Retarding the spark
(2) Increasing the engine speed
(3) Both (1) and (2)
(4) None of these

45. The ratio of the brake power to the indicated power is called _____

(1) Mechanical efficiency
(2) Over all efficiency
(3) Indicated thermal efficiency
(4) Volumetric efficiency

46. For the same maximum pressure and heat input, the exhaust temperature of petrol engine is _____ than that of diesel engine.

(1) Less
(2) More
(3) Twice
(4) None of the above

47. The most commonly used supplementary restraint system (SRS) component is _____

(1) Seat belt
(2) Break
(3) Air bag
(4) Steering

48. The natural gas is compressed in a CNG cylinder at a pressure of _____

(1) 200 bar
(2) 220 bar
(3) 250 bar
(4) 300 bar

49. The component that connects the steering rack to the knuckle is _____

(1) Tie-rod
(2) Sector gear
(3) Pivot
(4) Spline

50. The thermodynamic cycle on which the petrol engine works, is _____

(1) Otto cycle
(2) Joule cycle
(3) Rankine cycle
(4) Stirling cycle

51. The working pressure and temperature inside the cylinder of an internal combustion engine is _____ as compared to a steam engine.

(1) Low
(2) Very low
(3) High
(4) Very high

52. The scavenging efficiency of a four stroke cycle diesel engine is _____

(1) Below 50%
(2) Between 50 and 85%
(3) Between 85 and 95%
(4) Between 95 and 100%

53. The voltage required to produce a spark across the gap, between the sparking points is _____

(1) 2000 to 4000 volts
(2) 4000 to 6000 volts
(3) 6000 to 10000 volts
(4) 10000 to 12000 volts

54. The main function of the tread pattern on tyre is that _____

(1) The tread grooves pass air between the tyre and road surface, thereby preventing tyre from overheating.
(2) The crests between the tread grooves absorb road noise.
(3) In wet conditions, the tread grooves expel water that is drawn between the tyre and road surface.
(4) The tread pattern protects the tyre's inner carcass from small stones and pieces of glass.

55. Which is the example for external combustion engine ?

(1) Petrol Engine
(2) Diesel Engine
(3) Steam Engine
(4) None of the above

56. Working stroke is also called as _____

(1) Power stroke
(2) Expansion Stroke
(3) (1) & (2)
(4) None of these

57. Which is the material used for piston mainly ?

(1) Cast iron
(2) Mild steel
(3) Aluminium alloy
(4) Copper alloy

58. Which of the following is shape of combustion chamber ?

(1) Spherical Shape
(2) I ï Shape
(3) L ï Shape
(4) All of the above

59. Connecting rod is a link between _____

(1) Piston & Crankshaft
(2) Crankshaft & flywheel
(3) Piston & Piston rings
(4) None of the above

60. Engine displacement is given by _____

(1) $\frac{\pi}{4} D^2 \times L \times N \text{ cm}^3$
(2) $\pi DLN \text{ cm}^3$
(3) $\pi DL \text{ cm}^2$
(4) None of the above

61. Power developed in engine cylinder is _____

(1) Friction power
(2) Indicated power
(3) Brake power
(4) None of the above

62. Mechanical efficiency of I.C. engine is _____

(1) $\frac{FP}{BP}$

(2) $\frac{BP}{FP}$

(3) $\frac{IP}{BP}$

(4) $\frac{BP}{IP}$

63. Cetane number is related with which fuel ?

(1) Petrol
(2) Diesel
(3) Kerosene
(4) All of the above

64. Generally which type of fuel feed system used in two wheelers ?

(1) Pump system
(2) Pressure system
(3) Vacuum System
(4) Gravity System

65. Which is the material used for manufacture fuel tank ?

(1) Sheet metal
(2) Steel
(3) Copper
(4) Iron

66. Cam shaft used in I.C. engine for _____

(1) To operate valves
(2) To operate fuel pump
(3) Both (1) & (2)
(4) None of these

67. A supercharger is a device which increases the _____ of the air-fuel mixture.

(1) Velocity
(2) Volume
(3) Pressure
(4) None of the above

68. What is the mechanical efficiency of I.C. engine, if BP=10KW, IP=15KW & FP=5KW ?

(1) 66.66%
(2) 65.66%
(3) 67.66%
(4) None of the above

69. What is one more name for centrifugal governor ?

(1) Pneumatic Governor
(2) Hydraulic Governor
(3) Mechanical Governor
(4) None of the above

70. Which viscometer is used to measuring viscosity of a lubricating oil ?

(1) Redwood viscometer
(2) Engler viscometer
(3) Barbey viscometer
(4) All of the above

71. What is the function of rectifier in electrical system of Automobile ?

(1) To convert AC to DC
(2) To convert DC to AC
(3) Both (1) & (2)
(4) Neither (1) Nor (2)

72. The clutch works on the principle of _____

(1) Pressure
(2) Friction
(3) Speed
(4) Velocity

73. The part of the vehicle holds the passengers and the cargo to be transported is known as _____

(1) Chassis
(2) Hull
(3) Cabin
(4) Aft

74. Air resistance to a car at 20kmph is R. The air resistance at 40kmph would be _____

(1) R
(2) 2R
(3) R^2
(4) 4R

75. Which vehicle is generally provided with four wheel drive _____

(1) Ambassador Car
(2) Padmini Car
(3) Metador
(4) Jeep

76. An engine has clearance volume of 100cm^3 & swept volume of 800 cm^3 . The compression ratio is _____

(1) 7:1
(2) 9:1
(3) 8:1
(4) 10:1

77. The distance between the centres of the front wheel is called the _____

(1) Track
(2) Wheel base
(3) Axle width
(4) Turning circle

78. What is the mileage (fuel economy) drop due to use of air condition in car generally ?

(1) 1 ï 1.5km / litre
(2) 2 ï 2.5km / litre
(3) 2.5 ï 3.0km / litre
(4) None of the above

79. Which one is not the type of Automotive gas Turbine ?

(1) Constant volume type
(2) Constant pressure type
(3) Constant temperature type
(4) None of the above

80. Mechanical fuel pump is operated by _____

(1) Inlet valve
(2) Cam
(3) Connecting rod
(4) Crank Shaft

81. Which one is not a type of suspension spring ?

(1) Leaf spring
(2) Coil spring
(3) Torsion spring
(4) Oil spring

82. Injector is not located in _____

(1) Cylinder
(2) Port
(3) Manifold
(4) Crank case

83. Which one of the following sections offers the highest resistance to torsion ?

(1) Flat
(2) Tubular
(3) Channel
(4) Box

84. The consequences of a brake application is _____

(1) Store energy
(2) Change friction to heat
(3) Convert heat energy into kinetic energy
(4) Convert kinetic energy to heat energy

85. A 12V lead acid battery consists of _____

(1) Three cells in series
(2) Six cells in series
(3) Three cells in parallel
(4) Six cells in parallel

86. Rotary motion of the steering wheel is converted into reciprocate motion by _____

(1) Track arm
(2) Track rod
(3) Stub axle
(4) Steering box

87. An axle is located on a leaf spring by a _____

(1) U ï bolt
(2) Spring clip
(3) Centre bolt
(4) Shackle pin

88. The common type of clutch fitted between the engine and a synchromesh gear box is called a _____

(1) Dog
(2) Cone
(3) Multi plate
(4) Dry friction

89. The number of exhaust manifolds in a V ï 8 engine _____

(1) One
(2) Two
(3) Four
(4) Eight

90. Engine dynamo is usually driven by _____

(1) Chain drive
(2) V ï belt drive
(3) Gear drive
(4) Flat belt drive

91. The freezing temperature of ordinary petrol is _____

(1) 10^0C
(2) 0^0C
(3) ï 5^0C to ï 10^0C
(4) ï 30^0C to ï 50^0C

92. Cetane number of diesel oil normally available in market is in the range of _____

(1) 45 ï 50
(2) 60 ï 65
(3) 75 ï 80
(4) 90 ï 100

93. Water in lubricating oil aids in _____

(1) Burning
(2) Dilution
(3) Formation of sludge
(4) Oxidation

94. The purpose of crank case ventilation is to _____

(1) Cool the oil
(2) Remove vaporized water & fuel
(3) Supply oxygen to the crank case
(4) None of the above

95. The function of oil scraper rings is to _____

(1) Lubricate cylinder walls
(2) Retain compression
(3) Reduce piston ware
(4) Maintain vacuum

96. Exhaust valve temperature is about _____

(1) 35^0C
(2) 500^0C
(3) 100^0C
(4) 150^0C

97. A hot spark plug has a _____

(1) Long heat path
(2) Heat dam
(3) Short heat path
(4) Short insulator

98. Brake lining is mounted on _____

(1) Brake shoe
(2) Brake drum
(3) Master cylinder
(4) Wheel cylinder

99. The efficiency of mechanical brakes is usually _____

(1) 99%
(2) 95 ï 98%
(3) 85 ï 95%
(4) 60 ï 70%

100. Driving wheel bearings in automobiles are always, _____

(1) Bush bearings
(2) Clad metal bearings
(3) Anti friction bearings
(4) Either (1) or (2)