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# **Karnataka RTO**

**Previous Year Paper  
Automobile 2016**



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  $50^\circ$  before bottom dead centre and closes at  $15^\circ$  after top dead centre
- (2) Opens at bottom dead centre and closes at top dead centre
- (3) Opens at  $50^\circ$  after bottom dead centre and closes at  $15^\circ$  before 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)  $F.P. = B.P. \cdot I.P$
- (2)  $F.P. = I.P. \cdot B.P.$
- (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) 
$$\frac{2(V_0 / V_1)}{1 + (V_0 / V_1)^2}$$

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

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

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

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 . Shape
- (3) L . 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)  $DLN \text{ cm}^3$
- (3)  $DL \text{ cm}^2$
- (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) FP

BP

(2) BP

FP

(3) IP

BP

(4) 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  $100\text{cm}^3$  & swept volume of  $800\text{cm}^3$ .  
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 . 1.5km / litre
- (2) 2 . 2.5km / litre
- (3) 2.5 . 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 . 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 . 8 engine \_\_\_\_\_

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

90. Engine dynamo is usually driven by \_\_\_\_\_

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

91. The freezing temperature of ordinary petrol is \_\_\_\_\_

- (1)  $10^{\circ}\text{C}$
- (2)  $0^{\circ}\text{C}$
- (3)  $-5^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$
- (4)  $-30^{\circ}\text{C}$  to  $-50^{\circ}\text{C}$

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

- (1) 45 . 50
- (2) 60 . 65
- (3) 75 . 80
- (4) 90 . 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 wear
- (4) Maintain vacuum

96. Exhaust valve temperature is about \_\_\_\_\_

- (1) 35°C
- (2) 500°C
- (3) 100°C
- (4) 150°C

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 . 98%
- (3) 85 . 95%
- (4) 60 . 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)

