036/2024

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. Which of the following statement is/are correct about Internal Combustion engines?

(i) High speed engine

(ii) No cooling of the cylinders required.

(iii) Cooling arrangement necessary.

(iv) Slow speed engine.

(A) Only (ii) and (iv)
(B) Only (iii) and (iv)
(C) Only (i) and (ii)
(D) Only (i) and (iii)

2. Volume of the space above the piston when it is at TDC is known as :

(A) Clearance volume
(B) Swept volume
(C) Volumetric efficiency
(D) Thermal efficiency

3. Which of the following statement is/are correct about Four stroke engines?

(i) It gives one power stroke for one revolution of the crankshaft.

(ii) Engine is heavier in weight than two stroke due to more parts.

(iii) It gives one power stroke in two revolutions of the crankshaft.

(iv) Engine is lighter in weight than two stroke due to less parts.

(A) Only (ii)
(B) Only (iii) and (iv)
(C) Only (i) and (ii)
(D) Only (ii) and (iii)

4. The ratio between the air drawn in the cylinder during the suction stroke and the volume of the cylinder is known as :

(A) Mechanical efficiency
(B) Volumetric efficiency
(C) Thermal efficiency
(D) Fuel efficiency

5. Which of the following statement is correct about Compression ratio?

(A) Heat is rejected at constant volume

(B) It is the ratio of work output to the fuel energy burnt in the engine

(C) Ratio of compression volumes before the stroke and after

(D) It is the ratio of power delivered and power available in the engine

6. Which among the following is power available in the engine flywheel?

(A) Indicated Horse Power
(B) Frictional Horse Power
(C) Torque
(D) Brake Horse power

7. What is the stroke length of an engine if the crankshaft throw is 55 mm?

(A) 220 mm
(B) 330 mm
(C) 110 mm
(D) 27.5 mm

8. An instrument that indicate distance travelled by a vehicle?

(A) Odometer
(B) Tachometer
(C) Speedometer
(D) Spiro meter

9. Which indicator is used to display the accelerator opening level to maintain the set speed?

(A) Traction control indicator
(B) Cruise control indicator
(C) Bulb indicator
(D) Stability control indicator

10. Which among the following is the non-electric type fuel gauge?

(A) Bourdon tube type
(B) Coils with magnet
(C) Balancing coil type
(D) Coil with resistance unit

11. Where is the pre-combustion chamber located?

(A) Cylinder head
(B) Oil sump
(C) Cylinder block
(D) Crank case

12. Which type of pistons is used in modern engines to increase the area of contact at thrust faces?

(A) Domed head
(B) Flat head
(C) Slipper piston
(D) Concave piston

13. Which of the following statement is correct about roller bearings?

(A) It can take axial load
(B) It can take both axial and radial load
(C) It can take radial load
(D) None of the above

14. Which type of drive is used when the crankshaft and the camshaft are very close to each other?

(A) Chain drive
(B) Belt drive
(C) Gear drive
(D) Sprocket drive

15. Which type of oil scraper rings is used specially for re-ringing jobs, where the cylinder has worn out excessively?

(A) Solid rings
(B) Keystone rings
(C) T-flex rings
(D) Dura flex rings

16. Which component prevents arcs at the CB points and helps the ignition coil to release its energy in the form of high voltage surge through the secondary winding?

(A) Distributor
(B) Contact breaker
(C) Condenser
(D) Ignition switch

17. When a steel shutter is placed or moved in the air gap between the two poles of a magnet the magnetism in the air gap is cutoff. The sensor which used this principle is called?

(A) Hall effect sensor
(B) MAP sensor
(C) Throttle position sensor
(D) ECT sensor

18. In which type of ignition system two spark plugs are ignited at the same time?

(A) Distributor less ignition system
(B) Distributor type ignition system
(C) CDI ignition system
(D) Magneto ignition system

19. Which component in distributor connects and disconnects primary circuit of the ignition coil?

(A) CB points
(B) Condenser
(C) Ignition switch
(D) Spark plug

20. In which way a Condenser is connected to CB points?

(A) Series
(B) Parallel
(C) Series parallel combination
(D) None of the above

21. Which type nozzle having an auxiliary spray hole with main hole?

(A) Multi hole nozzle (B) Delay nozzle

(C) Pintaux nozzle (D) Pintle type nozzle

22. The measurement of fuel delivered by each plunger with the control rod in a fixed position and its comparison is called :

(A) Metering (B) Calibration

(C) Phasing (D) Governing

23. How much maximum pressure, develops by high pressure diesel pump in CRDI engine?

(A) 2000 Kg/cm^2 (B) 1600 Kg/cm^2

(C) 1200 Kg/cm^2 (D) 700 Kg/cm^2

24. In a diesel engine the duration between the time of injection and time of ignition is called :

(A) Injection lag (B) Ignition lag

(C) Delay period (D) Period of injection

25. How many fuel chambers are in HEUI?

(A) One (B) Two

(C) Three (D) Four

26. Which sensor is used to monitor the amount of oxygen in the exhaust gas?

(A) MAP Sensor (B) Hall effect sensor

(C) Mass air flow sensor (D) Lambda Sensor

27. How the CRDI injector's pressure control valve operated?

(A) Mechanically (B) Electronically

(C) Hydraulically (D) Manually

28. Which type of pump ensures in built and uniform delivery to all injectors in diesel engine?

(A) Inline pump (B) Jerk type pump

(C) Rotary pump (D) Servo type pump

29. What is the expansion of HEUI?

(A) Hydraulically actuated electrically controlled unit injector

(B) Hydraulically actuated electronically controlled unit injector

(C) Hydro-electric controlled unit injector

(D) Hydraulic effective controlled unit injector

30. In CRDI engine fuel system, where the excessive fuel returns?

(A) Return to high pressure pump (B) Return to fuel filter

(C) Return to the fuel tank (D) Reside in the rail itself

31. What is the purpose of glow plug in pre-combustion chamber in diesel engine?

(A) Completing combustion (B) Delaying combustion

(C) Advancing combustion (D) Initiating combustion

32. How much time taken to give signals to ECM after ignition switch on?

(A) One second (B) Two second

(C) Three second (D) Four second

33. Where is the thermostat valve fitted in pressurized cooling system?

(A) Water outlet of water pump (B) Water outlet of water jacket

(C) Water outlet of radiator (D) Water outlet of cylinder head

34. Which of the following is NOT an example of anti freeze agent used in engine coolant?

(A) Ethylene glycol (B) Chloromethane

(C) Ethyl alcohol (D) Calcium chloride

35. In which type of engine, Keel cooling system is generally used?

(A) Two stroke engines (B) Heavy duty engines

(C) Air craft engines (D) Marine engines

36. Which of the following is a commonly used corrosion inhibitor in engine coolant?

(A) Ethylene glycol (B) Chromates

(C) Glycerine (D) Calcium chloride

37. While engine working, the oil warning light provided on the dash board comes on, it means :

(A) High oil pressure (B) High oil level

(C) Low oil pressure (D) Leakage of oil

38. The minimum temperature at which oil gives off sufficient vapour to form combustible mixture with air is known as :

(A) Flash point (B) Fire point

(C) Combustion point (D) Pour point

39. Which type of lubrication system used a scavenge pump?

(A) Wet sump lubrication (B) Splash lubrication

(C) Petroil lubrication (D) Dry sump lubrication

40. Which of the following chemical substance are added to lubricating oil as anti-forming additives?

(A) Polyisobutane (B) Polyalyenyl succinimides

(C) Polyorganosiloxanes (D) Thiophosphoric acid

41. Which of the following statement is correct about maintenance-free battery?

(i) 0.1% calcium used

(ii) less corrosion of battery cables and terminals

(iii) the percentage of antimony is usually up to 5

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) Only (i) and (iii) (D) All of the above

42. What are the causes for battery sulphation?

(i) battery kept in discharged condition

(ii) very high specific gravity of electrolyte

(iii) insufficient electrolyte in the battery

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

43. Which of the following statement is correct about battery?

(i) as the gravity increases, the freezing point is lowered

(ii) specific gravity of fully charged battery above 32°C is 1.230

(iii) specific gravity of electrolyte is increased during charging

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

44. Which of the following statement is correct about alternator?

(i) stator is a stationary part

(ii) current is generated in the stator windings

(iii) magnetic field produced in rotor

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

45. Which of the following statement is correct about alternator output voltage?

(i) speed of rotation of the rotor

(ii) number of turns in the stator windings

(iii) strength of the rotor magnetic field

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) Only (i) and (iii) (D) All of the above

46. Which of the following statement is correct about DC dynamo?

(i) Armature coils are lap winding

(ii) Armature coils are wave winding

(iii) Armature coils are shunt winding

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

47. Which of the following statement is correct about Dyer drive starting motor?

(i) It is a pre engaged type starter motor

(ii) It is a inertia drive starter motor

(iii) It is suitable for heavy duty engines

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

48. Which of the following statement is correct about Integrated Starter Generator (ISG)?

(i) To perform the functions of both an alternator and a starter motor.

(ii) To provide an automatic vehicle start - stop system.

(iii) It transfers the drive from the engine to the transmission.

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

49. Which of the following statement is correct about starting motor?

(i) In starting motor; series-shunt winding used

(ii) In series-shunt winding lower internal resistance

(iii) In series -shunt winding current consumption is low

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

50. Which of the following statement is correct about headlight reflector?

(i) If the bulb is placed at its focus, the reflected rays are parallel to the axis

(ii) If the bulb is placed between focus and reflector, the reflected beam will diverge

(iii) If the bulb placed in front of the focal point, the reflected beam will coverage

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

51. Which of the following statement is correct about HID lamps?

(i) HID lights do not have any filament

(ii) It is also called as Xenon lights

(iii) Larger in size

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

52. Which of the following statement is correct about air bag?

(i) air bag is made of nylon fabric.

(ii) air bag unit contain sodium oxide and potassium nitrate.

(iii) produces nitrogen gas.

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

53. What are the reasons for acting vertical loads on the chassis frame?

(i) Weight of the vehicle

(ii) Weight of the passengers

(iii) When the vehicles comes across the bumb

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) Only (i) and (iii) (D) All of the above

54. The side member, cross members and the sub sections are joined by :

(i) Riveting

(ii) Lap welding

(iii) Bolted joint

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

55. Which of the following statement is correct about leaf Spring eye bush material?

(i) phosphor bronze bushes

(ii) rubber bushes

(iii) copper bushes

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

56. Which of the following statement is correct about wishbone type suspension system, the coil spring is placed in?

(i) Lower wishbone

(ii) Upper wishbone

(iii) Under side of the cross member

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) Only (i) and (iii) (D) All of the above

57. Which of the following statement is correct about coil spring, coil spring take?

(i) Shear stress

(ii) Torque reaction

(iii) Bending stress

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

58. Which of the following statement is correct about independent suspension system?

(i) unsprung weight is reduced

(ii) gyroscopic action is reduced

(iii) low initial cost

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

59. What are the main advantages of lower aspect ratio?

(i) Better load carrying capacity

(ii) Comfortable ride

(iii) Less wear

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

60. What are the effects of over inflation in tyre?

(i) rapid wear of tyre tread in centre only

(ii) tread separation and ply separation

(iii) more tread wear on sides

(A) Only (ii) and (iii) (B) Only (i) and (ii)

(C) All of the above (D) Only (i) and (iii)

61. Which of the following statement is/are depends upon the torque transmission of clutch?

(A) Size of the clutch plate
(B) Coefficient of friction
(C) Number of clutch plates used
(D) All of the above

62. What is the need of damper spring in the clutch plate?

(A) Dampen shocks during gear disengaging
(B) Dampen shocks during gear engaging
(C) Dampen shocks during clutch operation
(D) All of the above

63. Which of the following component is the part of single plate clutch assembly?

(A) Pressure plate
(B) Dog clutch
(C) Lay shaft
(D) Male cone

64. Which of the following statement is/are correct about synchromesh gear box?

(i) Synchronisers are used for easy gear shifting when a vehicle is motion
(ii) With synchronising action, gears can be changed without using double declutching
(iii) With synchronising action, gears can be changed with using double declutching

(A) Only (i) and (iii)
(B) Only (i) and (ii)
(C) Only (ii) and (iii)
(D) All of the above (i) (ii) and (iii)

65. Which of the following statement is/are the correct reasons for the gear to slip in a gear shifting mechanism?

(i) Wrong adjustment of gear lever/ selector road
(ii) Weak lock spring
(iii) Worn out locking ball/pin

(A) Only (i) and (iii)
(B) Only (i) and (ii)
(C) Only (ii) and (iii)
(D) All of the above (i) (ii) and (iii)

66. Which of the following statement is/are correct about constant mesh gear box?

(i) Gears of the main shaft are always in mesh with the corresponding gears of the counter shaft.

(ii) The main shaft gears are slided on the main shaft with the help of the shifter yoke mechanism.

(iii) In between the splined main shaft and gears, bushes are provided.

(A) Only (i) and (iii)
(B) Only (i) and (ii)
(C) Only (ii) and (iii)
(D) All of the above (i) (ii) and (iii)

67. Which of the following causes is/are correct in case of gear clash during shifting?

(i) Worn out universal joint

(ii) Synchroniser defective

(iii) Clutch free pedal play too much

(A) Only (i) and (iii)
(B) Only (i) and (ii)
(C) Only (ii) and (iii)
(D) All of the above (i) (ii) and (iii)

68. Which of the following is/are the advantage of automatic transmission?

(A) Improved acceleration and hill climbing

(B) Reduced fuel consumption

(C) Less wear and tear due to planetary gearing

(D) All of the above

69. AMT vehicle stands for :

(A) Automatic Transmission
(B) Automode Transmission
(C) Automated Manual Transmission
(D) Automobile Manual Transmission

70. Which of the following is/are the different types of CVT?

(i) Multiple chain with gear drive

(ii) Toothed belt drive

(iii) Steel belt drive step pulley

(A) Only (i) and (iii)
(B) Only (i) and (ii)
(C) Only (ii) and (iii)
(D) All of the above (i) (ii) and (iii)

71. Which one of the following is the spring loaded plate that transmits power to the driven plate when the clutch is engaged?

(A) Pressure plate
(B) Flywheel
(C) Clutch plate
(D) Clutch disk

72. It is a device which is used to transfer power from the engine to the transmission input shaft, it act as an automatic clutch to engage and disengage the engine and the transmission :

(A) Planetary gear unit
(B) Electro hydraulic transmission control
(C) Torque converter
(D) Synchromesh unit

73. Which one of the following is a part of cross-type universal joint?

(A) Inner spherical socket
(B) Yokes
(C) Outer spherical socket
(D) Button spring

74. What is the need of universal joint in a propeller shaft?

(A) To accommodate change in length
(B) To transfer torque at an angle
(C) To bend sideways
(D) To change torque

75. In a front wheel drive vehicles Transmission (Gear box) and final drive (Differential assembly) are enclosed in one casing is called :

(A) Torque converter
(B) Transfer case
(C) Transaxle
(D) Fully floating axle

76. Which of the following statement is/are correct about a fully floating axle?

(i) Takes only the driving thrust

(ii) Takes the vehicle load as well as the driving thrust

(iii) Takes only a partial load of the vehicle but the full driving thrust

(A) Only (i)
(B) Only (i) and (ii)
(C) Only (i) and (iii)
(D) Only (ii) and (iii)

77. Which of the following statement is/are correct in case of torque tube drive?

(i) The springs takes the weight of the body, torque reaction and driving thrust

(ii) The springs takes only side thrust besides supporting the body weight

(iii) The springs takes the weight of the body and driving thrust

(A) Only (i)
(B) Only (ii)
(C) Only (i) and (iii)
(D) All of the above (i) (ii) and (iii)

78. The adjustment for backlash in a differential is provided between the :

(A) Crown wheel and drive pinion
(B) Sun gear and axle shaft
(C) Crown wheel and planet gear
(D) Crown wheel and sun gear

79. Which of the following statement is/are correct about functions of final drive?

(i) It decrease the torque by increasing the speed

(ii) It transmit power at a right angle

(iii) It increase the torque by reducing the speed

(A) Only (i) and (iii)
(B) Only (ii) and (iii)
(C) Only (i) and (ii)
(D) All of the above (i) (ii) and (iii)

80. Which part of the differential is connected with the inner end of the axle shaft in a rear wheel drive vehicle?

(A) Planet gear
(B) Pinion gear
(C) Differential cage
(D) Sun gear

81. What causes "Air Suction" in pump of hydraulic power steering system?

(A) Noise
(B) Low pressure
(C) High fluid level
(D) Steering wheel play

82. What is the main cause for wear on one side of tyre?

(A) Over inflation
(B) Under inflation
(C) Improper camber
(D) Improper caster

83. Which angle helps in self centering of wheels after negotiating a turn?

(A) King pin inclination
(B) Castor angle
(C) Camber angle
(D) Included angle

84. The angle formed by the wheel with the vertical when the top of the wheel slants outward is called :

(A) Negative camber
(B) Negative castor
(C) Positive camber
(D) Positive castor

85. Technician A says at low speed four-wheel steering causes the rear wheels to pivot in the same direction as the front wheels. Technician B says at high speed the rear wheels pivot in the opposite direction of the front wheels. Who is right?

(A) Both A and B
(B) A only
(C) B only
(D) Neither A nor B

86. The Electronic Power Steering (EPS) system control unit control the assist motor based on signals of :

(A) road resistance, steering turning direction and engine speed
(B) road resistance, steering turning speed and vehicle speed
(C) road resistance, steering turning speed and engine speed
(D) road resistance, steering turning speed and direction and vehicle speed

87. One purpose of a recirculating ball type steering gear is to reduce the :

(A) number of parts
(B) operating friction
(C) operating cost
(D) toe-out during turns

88. Too much toe-in will be noticed by :

(A) excessive tyre wear because of taking corners
(B) light steering
(C) steering wander
(D) feathering of tyres

89. Which is the heart of integral power steering system?

(A) Flow control valve
(B) Pressure relief valve
(C) Rotary control valve
(D) Unloading valves

90. What will be the effect of negative scrub radious?

(A) Wheel is caused to toe - out
(B) Wheel is kept in straight position
(C) The tyre centre portion wear out
(D) Wheel is caused to toe - in

91. The efficiency of hydraulic braking system is :

(A) 40 – 50%
(B) 50 – 60%
(C) 60 – 70%
(D) About 90%

92. Disc brakes self-adjust when the lining wear allows the piston to :

(A) Contact the disc
(B) Slide outward through the seal
(C) Cause seal deflection
(D) Reposition the seal groove in the caliper

93. The fading of brakes occur :

(A) at high speed
(B) at low speed
(C) when brake lining is worn out
(D) during continuous brake application

94. In vacuum booster servo assisted brakes, the brakes are applied when :

(A) vacuum is applied to both sides of the vacuum piston

(B) atmospheric pressure is applied to one side of the vacuum piston

(C) atmospheric pressure is applied to both sides of the vacuum piston

(D) atmospheric pressure is removed from both sides of the vacuum piston

95. Which principle is applicable for hydraulic brakes?

(A) Pascals law (B) Boyls law

(C) Hooks law (D) Newton's law of motion

96. What is the precautionary measures to be adapted while removing secondary piston from a master cylinder to prevent damage?

(A) Remove the retaining spring before (B) Remove the circlip before

(C) Remove the stopper bolt before (D) Remove the return spring before

97. Releasing and reapplying the brakes succession is what an antilock system does and this process is called :

(A) Pressure multiplication (B) Pressure modulation

(C) Pressure reduction (D) Pressure balancing

98. Which type of brake system save the vehicle from skidding?

(A) ABS Brakes (B) Air Brakes

(C) Fail safe brake (D) Hydraulic brake

99. In a master cylinder, the primary piston is the piston that is :

(A) nearest the front end of the car

(B) hydraulically operated by the secondary piston

(C) directly operated by the push rod from brake pedal

(D) needed only on vehicles with drum brakes

100. What is the function of traction control system?

(A) Release the pressure to expansion tank

(B) Prevent wheel spinning

(C) Reduce steering effort

(D) Reduce the engine torque

SPACE FOR ROUGH WORK

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