

175/2016

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. During the compression stroke of a four stroke diesel engine, the piston compresses :  
(A) Air fuel mixture (B) Atomised diesel  
(C) Diesel Vapour (D) Air
2. The inventor of two stroke engine is :  
(A) Dugald Clark (B) Rudolf diesel  
(C) James Watt (D) Nicolaus A Otto
3. Theoretically during expansion process in a four stroke engine :  
(A) Inlet valve opens and exhaust valve closes  
(B) Inlet valve closes and exhaust valve opens  
(C) Both valve remains closed  
(D) Both valve remains opened
4. The nominal volume of cylinder when piston is at TDC is called :  
(A) Stroke volume (B) Swept volume  
(C) Clearance volume (D) Suction volume
5. Which of the following engine can operate at higher speed?  
(A) Square engine (B) Over square engine  
(C) Under square engine (D) Steam engine
6. The process of flushing out the products of combustion from the engine cylinder by fresh charge is known as :  
(A) Turbo charging (B) Super charging  
(C) Scavenging (D) None of the above
7. The injection pressure in CRDI system is upto :  
(A) 180 bar (B) 1080 bar  
(C) 18000 bar (D) 1800 bar

8. When the piston of a two stroke. Single cylinder engine move from BDC to TDC?
- (A) transfer port open and intake port closes
  - (B) exhaust port open and transfer port closes
  - (C) exhaust port and transfer port opens
  - (D) none of these
9. The number of Crankshaft for opposed piston engine is :
- (A) one
  - (B) two
  - (C) three
  - (D) four
10. The ratio of Brake thermal efficiency to indicated thermal efficiency is known as :
- (A) Mechanical efficiency
  - (B) Relative efficiency
  - (C) Air standard efficiency
  - (D) Calorific value efficiency
11. Chemically correct air fuel mixture ratio for SI engine is around :
- (A) 15 : 1
  - (B) 9 : 1
  - (C) 6 : 1
  - (D) 12 : 1
12. In Otto cycle, the addition of heat takes place at :
- (A) Constant pressure
  - (B) Constant volume
  - (C) Partially at constant pressure
  - (D) Any of the above
13. Which of the following is true for a two stroke engine?
- (A) fuel efficiency is more than four stroke engine of same size
  - (B) higher oil consumption
  - (C) used for two wheelers only
  - (D) eco friendly
14. Which type of nozzle can be used for facilitating pilot injection before the main injection?
- (A) Single hole nozzle
  - (B) Multi hole nozzle
  - (C) Pintle nozzle
  - (D) Pintaux nozzle
15. At the ventury throat of the Carburettor the velocity of air is :
- (A) Maximum
  - (B) Decreases
  - (C) Increases
  - (D) Remains same as before

16. The condition at which the engine operates at no load and with nearly closed throttle is known as :
- (A) Dieseling (B) Cruising  
(C) Idling (D) None of the above
17. The reference fuels used for comparing the anti knock value of SI engine fuel is :
- (A) Benzene and tetraethyl lead  
(B) Iso octane and normal heptane  
(C) Normal cetane and alpha methyl naphthalene  
(D) Benzene and iso octane
18. Releasing of clutch pedal causes :
- (A) Load on release finger  
(B) The compression of pressure spring  
(C) Pressure plate move away from clutch disc  
(D) Pressure plate move towards clutch disc
19. Clutch shaft is also known as :
- (A) Transmission input shaft (B) Counter shaft  
(C) Lay shaft (D) Main shaft
20. Throw out bearing is used to :
- (A) reduce friction on clutch disc (B) engage the clutch  
(C) disengage the clutch (D) none of the above
21. Excess clutch free pedal play causes :
- (A) Clutch slipping (B) Difficulty in gear shifting  
(C) Wear of release bearing (D) Wear of clutch disc
22. Which of the following is not a function of final drive of heavy vehicle?
- (A) final speed reduction (B) power transmission  
(C) reduction of torque (D) none of the above

23. Which of the following is not an advantage of overdrive?
- (A) Fuel economy
  - (B) Increase of torque
  - (C) Reduced engine wear
  - (D) High vehicle speed at low engine speed
24. The torque is measured in :
- (A) N-m
  - (B) Nm/Second
  - (C) N/m
  - (D) N/m<sup>2</sup>
25. The part of synchromesh gear box which is splined to the transmission output shaft is :
- (A) Synchroniser sleeve
  - (B) Synchroniser ring
  - (C) Mainshaft gear
  - (D) Synchroniser hub
26. Idler gear is used to engage :
- (A) First gear
  - (B) Synchroniser ring
  - (C) Reverse gear
  - (D) Top gear
27. The tendency of front wheel drive cars with unequal length of half shaft to pull to oneside during acceleration is known as :
- (A) Torque steer
  - (B) Self steer
  - (C) Power steer
  - (D) None of the above
28. Torsion bar is also known as :
- (A) Stabilizer rod
  - (B) Anti roll bar
  - (C) Trailing rod
  - (D) Radius rod
29. In Macpherson type suspension system shock absorber is mounted on :
- (A) Lower wish bone
  - (B) Upper wish bone
  - (C) Strut
  - (D) Spring
30. Leaf springs are connected to frame through shackles for :
- (A) reduce friction
  - (B) avoid breaking of spring
  - (C) avoid rolling of vehicle
  - (D) none of the above

31. Torsion bar is attached to:
- (A) Lower arm (B) Upper arm  
(C) Shock absorber (D) Steering knuckle
32. Exhaust gas recirculation system is chiefly means to reduce the emission of :
- (A) CO (B) CO<sub>2</sub>  
(C) NO<sub>x</sub> (D) SO<sub>4</sub>
33. Which of the following is not an effect of increased amount of exhaust gas recirculation?
- (A) engine brake power decreases  
(B) specific fuel consumption decreases  
(C) brake specific fuel consumption increases  
(D) none of the above
34. The catalyst used for the reduction of NO<sub>x</sub> in three way catalytic converter is :
- (A) Platinum (B) Palladium  
(C) Rodium (D) All of the above
35. The speed of distributor cam is :
- (A) same as engine speed (B) half of engine speed  
(C) one fourth of camshaft speed (D) none of the above
36. The dwell angle for a four cylinder engine is in the range of :
- (A) 48° to 52° (B) 55° to 70°  
(C) 36° to 42° (D) 10° to 32°
37. The condenser in ignition system is mounted :
- (A) On ignition coil (B) On distributor cap  
(C) Outside the distributor (D) Inside the distributor
38. The secondary terminal of Ignition coil is connected to :
- (A) Ameter. (B) Distributor cap  
(C) Spark plug (D) Battery
39. Which of the following unit is used to express the capacity of condensor?
- (A) tesla (B) webber  
(C) candela (D) micro farads

40. The specific gravity of electrolyte can be checked with :
- (A) hygrometer (B) voltmeter  
(C) multimeter (D) hydrometer
41. Open circuit voltage of a 12V lead acid battery in fully charged condition is :
- (A) 2 V (B) 2.5 V  
(C) 12.6 V (D) 14 V
42. The voltage of each cell of alkaline battery is :
- (A) 1.2 V (B) 2.2 V  
(C) 6.2 V (D) None of the above
43. The speed of generator at which its output voltage just rises above the voltage of battery being charged is called :
- (A) Cut in speed (B) Synchronous speed  
(C) Run off speed (D) Run out speed
44. The purpose of brushes in alternator of automobiles is :
- (A) To collect current from rotor winding  
(B) To collect current from stator winding  
(C) To convey current from battery to stator  
(D) To convey current from battery to rotor
45. In an alternator current is induced in :
- (A) Rotor winding (B) Stator winding  
(C) Carbon brushes (D) Slip rings
46. In starter motor the field coils are wound around :
- (A) Commutator (B) Pole shoes  
(C) Yoke (D) None of the above
47. The reflector used in automobile head lamp is of :
- (A) Spherical shape (B) Hemispherical shape  
(C) Hyperbolic shape (D) Parabolic shape
48. The purpose of filling inert gasses inside the bulb is :
- (A) to reduce filament temperature (B) to avoid dazzling effect  
(C) to avoid vapourisation of filament (D) none of the above

49. Metal halide type HID head lamps are popularly known as :
- (A) Mercury vapour lamp (B) Xenon lamp  
(C) Low pressure sodium lamp (D) High pressure sodium lamp
50. Transfer case is used in :
- (A) front wheel drive vehicles (B) rear wheel drive vehicles  
(C) four wheel drive vehicles (D) all of the above
51. VIN stands for :
- (A) Vehicle Information Numerals (B) Vehicle Identification Numerals  
(C) Vehicle Identification Number (D) Vehicle Index Number
52. In metric system pressure is measured in :
- (A) Pascal (B) PSI  
(C) erg (D) Newton per metre
53. Which of the following is not a cutting tool?
- (A) Hand file (B) Drill  
(C) Chisel (D) Screw driver
54. Flaring operation is usually done on :
- (A) Metal tube (B) Metal channel  
(C) Rubber hoses (D) Flat plates
55. Bench vice is a :
- (A) Holding tool (B) Filing tool  
(C) Marking tool (D) None of the above
56. The unit of acceleration is :
- (A) m/s (B)  $m^2/s$   
(C) m.s (D)  $m/s^2$
57. Youngs modulus is :
- (A) Shear stress/Shear strain (B) Volumetric strain/Volumetric stress  
(C) Tensile stress/Tensile strain (D) Shear strain/Shear stress

58. Co-efficient of friction is equal to :
- (A) Sine angle of friction (B) Limiting friction/ Normal reaction  
(C) Normal reaction / Limiting friction (D) None of the above
59. Megger is an instrument used to measure:
- (A) resistance (B) voltage  
(C) current (D) temperature
60. Scissors is an example of :
- (A) First order lever (B) Second order lever  
(C) Third order lever (D) Curved lever
61. Factor of safety is equal to :
- (A) Ultimate stress/cross section area (B) Ultimate load/cross section area  
(C) Stress/Strain (D) Ultimate stress/working stress
62. The quantity of heat required to raise the temperature of unit mass of substance through  $1^{\circ}\text{C}$  is called :
- (A) Latent heat (B) Fahren heat  
(C) Specific heat (D) None of the above
63. The function of waste gate in turbo charger is to :
- (A) limit boost pressure (B) increase boost pressure  
(C) to cool the air (D) reduce emission
64. Which of the following is not a part of waste gate assembly?
- (A) Diaphragm (B) Diaphragm spring  
(C) Valve (D) Turbine
65. Morse test is not applicable to :
- (A) Four stroke multi cylinder engine (B) Multi cylinder petrol engine  
(C) Multi cylinder Diesel engine (D) Four stroke single cylinder engine
66. Prony Brake is used to measure :
- (A) IP (B) BP  
(C) FP (D) none of the above



67. The chemical name of R-134 a is :
- (A) Dichloro difluoro methane (B) Tetra fluoro methane  
(C) Chloro fluoro methane (D) Carbon tetra fluoride
68. The toner ring (Tone ring) is used in :
- (A) Torque converter (B) Lubrication system  
(C) ABS (D) Air conditioning system
69. The type of stresses mainly developed in tappet during valve opening is :
- (A) Tensile stress (B) Compressive stress  
(C) Shear stress (D) Torsional stress
70. In full floating type rear axle driving torque is carry by :
- (A) Axle shaft (B) Axle casing  
(C) Bearing (D) Bearing and axle casing
71. Thermosyphen cooling system works due to :
- (A) Pump force (B) Humidity difference of system  
(C) Difference in density of coolant (D) None of the above
72. Wankel engine operates upon :
- (A) Brayton cycle (B) Diesel cycle  
(C) Otto cycle (D) Atkinson cycle
73. Firing order of a four stroke four cylinder in line engine is 1-3-4-2. During operation, if second cylinder is in compression stroke what process will progressing in first cylinder
- (A) Suction (B) Compression  
(C) Power (D) Exhaust
74. The electrolyte used in lead acid battery is :
- (A)  $PbO_2$  (B)  $Pb.O$   
(C)  $PbSO_4$  (D)  $H_2SO_4$
75. The angle through which the wheel has to turn to sustain the side force is called :
- (A) Camber angle (B) Slip angle  
(C) Rake angle (D) None of the above

76. Break away capsule is a safety device associated with:
- (A) Brake (B) Airbag  
(C) Engine (D) Steering column
77. The king pin inclination is usually :
- (A) 2° (B) 15°  
(C) 4° (D) 8°
78. Which of the following is not an insulator?
- (A) Mica (B) Silver  
(C) Rubber (D) Porcelain
79. Delco eye is associated with :
- (A) Battery (B) Shock absorber  
(C) Leaf spring (D) Navigation system
80. The total distance covered by vehicles is recorded in :
- (A) Speedometer (B) Tachometer  
(C) Odometer (D) None of the above
81. In which year did Sree Narayana Guru emphatically declare and categorically state that he did not hold any sort of affinity or allegiance to any religion, caste or creed?
- (A) 1915 (B) 1916  
(C) 1917 (D) 1918
82. The \_\_\_\_\_ act as a barrier against the cold winds blowing from Central Asia and prevent them from reaching India.
- (A) Himalayas (B) Prairies  
(C) Bay of Bengal (D) Andes
83. The Prime Minister of India launched the II<sup>nd</sup> International yoga day celebrations in Chandigarh on :
- (A) June 19, 2016 (B) June 23, 2016  
(C) June 25, 2016 (D) June 21, 2016

84. The revolutionary organisation Hindustan Democratic Federation which actively involved in the Kakori case was founded by :
- (A) Barindra Kumar ghosh (B) Madanlal Dhingra  
(C) Sachindra Sanyal (D) Lala Hardayal
85. The Republican presidential nominee of the 2016 election in the united states of America :
- (A) Mark Burns (B) Hillary Clinton  
(C) Mike Pence (D) Donald Trump
86. Mahatma Ayyankali took a lower caste girl to get admission in a school at Uroottambalam. What was her name?
- (A) Sujatha (B) Panchami  
(C) Kannaki (D) Chirutha
87. \_\_\_\_\_ is the largest producer and exporter of tea in the world.
- (A) U.S.A. (B) Brazil  
(C) India (D) China
88. Which is known as the 'Black Pagoda'?
- (A) Sun Temple of Konark (B) Lingaraj Temple, Bhuvaneshwar  
(C) Sree Padmanabha Temple (D) Raja Rajeshwara Temple
89. Name the President of Turkey :
- (A) Burak Ackapar (B) Recep Tayyip Erdogan  
(C) Binali Yildirim (D) General Bekir Ercan Van
90. The leader of 'Antharjana Samajam' organised under the patronage of V.T. Bhattatirippad :
- (A) Lekshmikutty Antharjanam (B) Koikkal Narayaniamma  
(C) Lekshmibai Thampuratty (D) Parvathy Nenminimangalam
91. The great revolutionary Surya sen was famous for :
- (A) Lahore conspiracy case (B) Demand for complete independence  
(C) Chittagong Armed Raid (D) Movement against Jallian wala Bagh
92. Banks of India were nationalised for the first time in the year :
- (A) 1969 (B) 1968  
(C) 1967 (D) 1966

93. Name the Purana which contains the most systematic record of ancient Indian historical tradition :
- (A) Skanta Purana (B) Markkandeya Purana  
(C) Agni Purana (D) Vishnu Purana
94. Who first expounded the theory of 'Economic Drain' of India during the British rule?
- (A) Dadabhai Naoroji (B) Shyamji Krishna Varma  
(C) Abdul Kalam Azad (D) Bala Gangadhar Tilak
95. The first woman Prime Minister of great Britain :
- (A) Margaret Alwa (B) Theresa May  
(C) Marisol Touraine (D) None of the above
96. Name the author of 'Treatment of Tiyas' in Travancore :
- (A) K. Ayyappan (B) Dr. Palpu  
(C) K. Kelappan (D) Changanacheri Parameswaran Pillai
97. The country that won the copa America football tournament, 2016 :
- (A) Argentina (B) Brazil  
(C) Chile (D) Mexico
98. During the freedom struggle Kanpur conspiracy case was against :
- (A) Communist movement (B) Ghaddar movement  
(C) HSRA (D) INA
99. The real name of Vagbhatananda is :
- (A) Kunjiraman (B) Kunjanandan  
(C) Kunju Pillai (D) Kunjikkannan
100. Which is the capital of Peru?
- (A) Santiago (B) Lima  
(C) Lapaz (D) Havana