

ELEMENTS OF MECHANICAL ENGINEERING

Short type - (2 marks)

- 1 . Define first law of thermodynamics .
- 2 . what do you mean by a state function ?
- 3 .define internal energy .
- 4 . what are the applications of first law of thermodynamics .
- 5 . what do you mean by entropy ?
- 6 . define enthalpy .
- 7 . define heat engine .what are the applications of heat engine ?
- 8 . what are the properties of steam ?
- 9 . define charle's law with mathematical expressions .
- 10 . differentiate between perfect gas and real gas .
- 11 . define gas constant . mention its value .
- 12 . define Boyle's law .
- 13 . define various thermodynamic processes .
- 14 . define law of conservation of energy .
- 15 . define specific heat .
- 16 . what do you mean by thermodynamic equilibrium ?

- 17 . state various boiler mountings .
- 18 . what do you mean by path function ?
- 19 . "work is a high grade form of energy where as heat is a low grade form of energy " . explain .
- 20 . define specific gravity . mention its unit .
- 21 . what is the function of safety valve used in a boiler ?
- 22 . enlist various boiler accessories .
- 23 . define mass density .
- 24 . differentiate between mass density and weight density .
- 25 . what do you mean by atmospheric pressure . mention its SI unit .
- 26 . explain the classification of boilers .
- 27 . what do you mean by Mean effective pressure (MEP) ?

- 28 . what do you mean by Bore and stroke length of An IC engine ?
- 29 . define clearance volume (V_c)
- 30 . define swept volume .(V_s)
31. Define vacuum pressure .
32. What do you mean by absolute pressure ?
33. Convert a force (In SI) of 1 Newton into its equivalent C.G.S unit .
34. Define pascal's law of hydrostatics .
35. What do you mean by kinetic head ?
36. What do you mean by hydraulic energy .
37. What do you mean by hydraulic lift ?
38. What do you mean by Octane number ?
39. What do you mean by cetane number ?
40. Differentiate between IHP & BHP .
41. Determine the work done in a Isothermal (Constant temperature) process .
42. Determine the equation of 1st law of thermodynamics in a isobaric process .
43. What do you mean by impulse turbine ? mention its examples .

LONG TYPE

- 44 . derive an expression between specific heat at constant pressure (C_p) and specific heat at constant volume (C_v) .
- 45 . explain dry , wet and superheated steam .
46. differentiate between four stroke petrol and four stroke diesel engine .
- 47 . what are the different types of boilers used in a steam power plant ?
- 48 . describe babcock and wilcox boiler with a neat sketch .
49. describe cochran boiler with a neat sketch
50. explain the working principle of simple steam engine .
51. differentiate between IP(indicated power) and BP (brake power) .

60. state and explain bernouli's theorom .

61. explain the various functions of a condenser .mention its various types .

62.Explain the working of a four stroke SI(Spark ignition) engine with a neat diagram .

63.Differentiate between impulse and reaction turbines .

64.Why accumulators are used in a hydraulic device ?

65.What are the functions of hydraulic ram , explain ?

66.Differentiate between two stroke and four stroke engine .

67.Determine pressure at a point by using a U- tube manometer .

68.Explain the equation of continuity.

69.Derive the expression of perfect gases out of the Three gas laws .

70 . define enthalpy . mention its SI unit . (2 marks)