march 2020

Time: 3hrs **Maximum marks: 75**

PART-A

(Marks 5 X 2 = 10)

[Note: i) Answer any 5 questions ii) All questions carry equal marks]

1) Define specific heat of a gas at constant pressure.
2) Define mean square velocity.
3) Define critical temperature.
4) Define renewable sources of energy.
5) Define critical angle.
6) Define passive remote sensing.
7) Define resistivity.
8) Define Fermi level.

PART-B

(Marks 5 X 3 = 15)

[Note: i) Answer any 5 questions ii) All questions carry equal marks]

9) Define coefficient of thermal conductivity.
10) Define second law of thermodynamics.
11) Define total internal reflection.
12) Give any three uses of laser.
13) Define Kirchhoff's law.
14) Define super conductivity
15) What are extrinsic semiconductors?
16) Explain NAND gate.

PART – C

(Marks 5 X 10 = 50)

[Note: i) Answer all questions, choosing any two divisions from each question ii) All questions carry equal marks]

17)
   a) State the postulates of kinetic theory of gases.
   b) Derive the Mayer's relation.
   c) Find the root mean square velocity of helium molecule at STP. If the density of helium is 0.1786 kgm^{-3} at STP.

18)
   a) Write a note on Solar Energy and wind energy.
   b) Explain the liquefaction of oxygen by Cascade process
   c) A gas at 2atmosphere is compressed to half of its original volume. Calculate the final pressure, if the compression is (i) isothermal and (ii) adiabatic(γ=1.4)

19)
   a) Explain the working of ruby laser
   b) Describe the components of remote sensing.
   c) Calculate the refractive index of a prism if the angle of the prism is 59^0 and the angle of minimum deviation is 39^0.

20)
   a) Derive the condition to balance the wheatstone's bridge by using Kirchoff's laws.
   b) Describe the construction and working of a moving coil galvanometer.
   c) Caculate the electro chemical equvalent of silver given that a current of 1Amp flowing for 25 minutes through a silver voltameter deposites 1.74gram of silver.

21)
   a) Explain P-type semiconductor and N-type semiconductor.
   b) Explain the working of full wave rectifier.
   c) Explain OR and NOR gates with truth table.