Reg. No. : | | | | | | | | | | |

Question Paper Code: 42004

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Second Semester

Computer Science and Engineering

14UPH204 - APPLIED PHYSICS

(Common to EEE, ECE, EIE, ICE and IT Branches)

(Regulation 2014)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which statistical model is applicable for electrons?

   (a) Maxwell-Boltzmann (b) Bose-Einstein
   (c) Fermi-Dirac (d) None of the above

2. As per classical theory susceptibility is

   (a) Inversly proportional to temperature (b) Directly proportional to temperature
   (c) Independent of temprature (d) All the above

3. Which semiconductor is widely used in microelectronics?

   (a) Si (b) Ge (c) InP (d) GaP

4. In intrinsic semiconductor at $0K$ Fermi level lies

   (a) Exactly between valence band and conduction band

   (b) Very near to the valence band

   (c) Very near to the conduction band

   (d) None of the above

5. In a Ferromagnetic materials which one is mentioned as easy direction

(a) (111) (b) (110) (c) (100) (d) All the above

6. Which magnetic material is used as a transformer core?

(a) Dia (b) Para (c) Ferro (d) Ferri

7. Bound electron is called as

(a) Exciton (b) Traps
(c) Colour centre (d) None of the above

8. For a given dielectric, as the temperature increases, the ionic polarizability

(a) increases (b) decreases (c) remains unaltered (d) zero

9. The width of carbon nanotube is_____ *nm*

(a) 1 (b) 1.3 (c) 1.55 (d) 10

10. Which one is a high temperature phase

(a) Austenite (b) Marteniste
(c) Twinned martensite (d) Deformed martensite

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

16. Derive an expression for electrical and thermal conductivity. (8)

17. Derive the relation for carrier concentration of n-type semiconductor. Also sketch the variation of Fermi level with temperature in the case of 'n' type semiconductor. (8)

18. What are the various types of magnetic materials? With necessary sketches explain the domain theory of ferromagnetism. (8)

19. Write short notes on thermography and its applications (8)

20. What are metallic glasses? Explain the melt spinning technique to prepare metallic glasses and mention some important properties of metallic glasses. (8)

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