KUMARAGURU
college of technology
character is life

Register Number: ……

B.E or **B.TECH DEGREE EXAMINATIONS: JUNE 2015**

(Regulation 2013)

Second Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U13PHT205 : Applied Physics

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Unit for absorption coefficient of sound is
   a) Hertz b) Bel
   c) Sabine or OWU d) No unit
2. The Sound of intensity level 120 decibel produces a feeling of pain in the ear and is therefore called as the ……
3. The classical value of Lorentz number is given by:
   a) $1.12x10^{-6}$ $W\Omega K^{-2}$ b) $1.24x10^{-8}$ $W\Omega K^{-2}$
   c) $1.24x10^{-6}$ $W\Omega K^{-2}$ d) $1.12x10^{-8}$ $W\Omega K^{-2}$
4. SQUIDS is the abbreviation of ……..
5. The excitons are the bound state of
   a) Electrons and holes b) Electrons and protons
   c) Electrons and neutrons d) Electrons and nucleus
6. The Fermi energy in an intrinsic semiconductor is in …..of the energy band gap.
7. The paramagnetic susceptibility is
   a) Positive always negative always
   c) zero always all are correct
8. Chemical formula of a simple ferrite is…..
9. Which is not the structure of CNT
   a) chairal b) cube
   c) zigzag d) armchair
10. Two broad classifications of plasmas are ……..

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. State Weber-Fechner law.
12. What is echelon effect?
13. Mention the drawbacks (any two) of classical free electron theory.
14. Write short notes on High Tc superconductors.
15. Calculate the drift velocity of the free electron in copper for electric field strength of 0.5 V/m. (mobility of electron = 3.5×10^{-3} m^2 V^{-1} s^{-1})
16. What is phosphorescence?
17. What is Hysteresis effect?
18. What is dielectric loss?
19. Write short notes on glow discharge.
20. What are the two types of carbon nanotubes?

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Obtain the expression for Sabine's formula for reverberation time.

22. a) What is density of energy states? Obtain an expression for the density of states.

(OR)

b) (i) What is Meissner effect? How it is used in MAGLEV? (8)

(ii) Distinguish: Type I &Type II superconductors (6)

23. a) Obtain an expression for carrier concentration in an N-type semiconductor.

(OR)

b) What is colour centre? Explain the different types of colour centers in optical semiconductors.

24. a) List out various mechanisms in Domain theory of ferromagnetism with different energy concepts.

(OR)

b) Discuss in detail about Electronic and Ionic polarization.

25. a) (i) Discuss in detail about the cold plasma. (8)

(ii) What are the various applications of plasma in medical field? (6)

(OR)

b) (i) How to synthesis nano particle using Chemical Vapour Deposition? (8)

(ii) How to synthesis nano particle using Ball milling method? (6)

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