CH/CE/CS/EC/EE/EI/IT/ME-122
14PH202/PH122

Hall Ticket Number:

I/IV B.Tech (Supplementary) DEGREE EXAMINATION

November, 2019 **Common to all branches**

Second Semester **Engineering Physics-II**

Time: Three Hours **Maximum :** 60 Marks

Answer Question No.1 compulsorily. (1X12 = 12 Marks)
Answer ONE question from each unit. (4X12=48 Marks)

1 Answer all questions (1X12=12 Marks)

a) What is the effective mass of an electron?
b) What is an extrinsic semiconductor?
c) What is law of mass action?
d) What is Hysteresis?
e) What are hard magnetic materials?
f) Define dielectric strength of a dielectric?
g) What is quantum confinement?
h) Define critical field.
i) Write any two applications of Photo diode.
j) What is a GM counter?
k) What is cavitation effect?
l) What are Radio isotopes?

UNIT I

2 a) Explain Kronig-Penny model qualitatively and energy bands. 8M
b) Find the Fermi-Dirac Probability of finding electrons in an energy level kT above the Fermi level. 4M

(OR)

3 a) Explain P-N junction diode and its V-I characteristics 6M
b) Derive the equation of continuity. 6M

UNIT II

4 a) What is Origin of magnetic moment of an atom? Explain. 6M
b) What are ferrites? Give a brief note on ferrites and its applications. 6M

(OR)

5 a) Explain the frequency dependence of polarization in dielectrics. 8M
b) Discuss the different reasons for dielectric breakdown. 4M

UNIT III

6 a) What are Carbon nano tubes? Explain with its properties. 6M
b) What are the applications of Nano materials? 6M

(OR)

7 a) Explain qualitatively BCS theory of Superconductivity. 8M
b) What is Meissner effect? Explain. 4M

UNIT IV

8 a) What are applications of Ultrasonics? 8M
b) Explain about the Scintillation counter 4M

(OR)

9 a) Explain Time of flight diffraction technique. 6M
b) What are miller indices? How they will be calculated? And explain their significance. 6M