

19th May 2015

Roll No.1410759024.....

Subject Code—3003

B. Tech. EXAMINATION

(Second Semester)

(Main/Re-appear For Batch 2011 Batch)

PHYSICS-II

PHY-102-E

(Common) (All B. Tech.)

Time : 3 Hours

Maximum Marks : 70

Note : Attempt *Five* questions in all, selecting at least *two* questions from each Part. All questions carry equal marks.

Part A

1. Derive the Bragg's relation for diffraction of X-rays and describe the X-ray diffraction by powder method.

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P.T.O.

2. (a) What are the important concepts of Quantum Physics ?
- (b) Derive the Schrödinger time independent wave equation.
3. (a) What do you mean by Point Defects in Solids ? Derive an expression for the concentration of Frenkel defects.
- (b) Write a short note on Quarks and Gluons.
4. Describe Drude's theory of Conductivity.

Part B

5. (a) What are Brillouin zones ?
- (b) Explain the significance of effective mass. Under what circumstances it can have negative values and why ?
6. Define Photoconductivity. What are traps ? Discuss a simple model to show the effect of traps on photoconductivity of a photoconductor.

7. Discuss the classical theory of paramagnetism and show how paramagnetic susceptibility varies with temperature.

8. Write short notes on the following :

(a) London equation

(b) Hall effect.