

V. P. & R. P. T. P. Science College

Vallabh Vidyanagar 388 120

T. Y. B. Sc. (Sem-5)

PHYSICS

US05CPHY03

First Internal Test

Thursday

5th October, 2017

Time: 11.00 a.m. to 12.30 p.m.

Marks: 25

Q-1 Multiple Choice Question

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I. The energy of X-ray used for crystal diffraction experiments are

- (a) 10 to 50 eV (c) 10 to 50 KeV
(b) 10 to 50 MeV (d) 10 to 50 GeV

II. Drude model is unable to explain

- (a) Electron heat capacity & paramagnetic susceptibility (c) Electron diffraction
(b) Isotopic Mass (d) Entropy

III. The photo electric effect emits the

- (a) Photon (c) Electron
(b) Photoelectron (d) Phonon

Q-2 Attempt any two questions

4

I. When electron diffraction techniques are used.

II. What is Hall Effect?

III. How can we prepare n-type semiconductors?

Q-3 Discuss Powder method with suitable diagram.

6

Or

Q-3 Explain the geometrical construction of reciprocal space.

6

Q-4 Discuss the effect of temperature on the Fermi-Dirac distribution function.

6

Or

Q-4 What is superconductivity? Differentiate type-I and type-II superconductors.

6

Q-5 Discuss donor and acceptor energy levels in the semiconductor.

6

Or

Q-5 Discuss the Photoelectric effect.

6

