



25

(SET-B)

BHARATI VIDYAPEETH COLLEGE OF ENGINEERING,

NAVI MUMBAI - 400614.

INTERNAL THEORY EXAMINATION -II (2015-2016)

FE Semester-I

Date: 26/10/2015

Time duration: 45 minutes.

MARKS: 15

APPLIED PHYSICS-I

- Assume suitable data if necessary.
- Figures to the right indicate full marks.

Q.1 Attempt any TWO

(04)

- a) Define the terms conductors, insulators and semiconductors.
- b) Why semiconductor act as insulator at 0 K.
- c) Calculate the number of acceptor atoms to be added to a germanium sample to obtained resistivity of 10 ohm-cm. Given: Mobility = 1700 cm²/V-s.

Attempt any ONE

(02)

- d) Define: (i) Direct piezo electric effect and (ii) inverse-piezo electric effect.
- e) A hall of volume 1000 m³ has a sound absorbing surface area of 400 m². If the average absorption coefficient of the hall is 0.2 sabine, what is the reverberation time of the hall?

Q:2 Explain the production of ultrasonic waves using piezoelectric oscillator.

(04)

OR

Explain the factors affecting acoustics of a building and their remedies.

Q.3 What is Hall Effect? Mention its significance. Derive an expression for Hall voltage (V_H) and Hall coefficient (R_H).

(05)

of charge carriers? OR

What is mobility? Find the resistance of an intrinsic germanium rod 1 cm long, 1 mm wide and 1 mm thick at 300 K. For germanium $n_i = 2.5 \times 10^{19}/m^3$, $\mu_e = 0.39 m^2/V-s$, $\mu_h = 0.19 m^2/V-s$.