

R09**Code: 9ABS102**

B.Tech I Year (R09) Supplementary Examinations June 2016

ENGINEERING PHYSICS

(Common to all branches)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) How the polarized light is different from ordinary light?
(b) Write notes on Nicol prism.
(c) Find the minimum thickness of half and quarter wave plates for a light beam, $\lambda = 589.3\text{nm}$ if $\mu_e = 1.48640$ and $\mu_o = 1.65833$.
- 2 (a) Explain the principle, procedure and advantages of Debye-Scherrer method of X-ray diffraction.
(b) Obtain Miller indices of a plane which intercepts at a , $b/2$ and $3c$ in simple cubic unit cell. Draw a neat diagram showing the plane.
- 3 (a) Discuss the Kronig-Penney model for the motion of an electron in a periodic potential.
(b) Explain the concept of effective mass of an electron.
- 4 (a) State and explain Hall effect.
(b) Show that for n-type semiconductor the Hall coefficient $R_H = -\frac{1}{n_e}$.
- 5 (a) Define the terms ionic polarization and ionic polarizability for an ionic dielectric.
(b) Describe ionic polarization in an ionic dielectric.
- 6 Write short notes on the following:
(a) Meissner effect.
(b) Flux quantization.
(c) BCS theory.
- 7 (a) What are the advantages of optical fibers in communication system?
(b) Describe the function of optical transmitter and receiver in digital fiber optic communication system.
- 8 (a) What are Carbon Nanotubes? Mention their significance in various fields.
(b) Describe different types of Carbon Nanotube.
