

Code :RR100103

B.Tech I Year (RR) Supplementary Examinations, May 2011

ENGINEERING PHYSICS

(Common to Civil Engineering, Mechanical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) With relevant theory explain how radius of curvature of a convex lens be determined by forming Newton's rings.
(b) In Newton's rings system if the diameters of 4th and 6th rings are found to be 0.2 mm and 0.25 mm, calculate the wavelength of light used. The radius of curvature of the convex surface of the lens is 0.9 m.
2. (a) Explain electrostatic focusing.
(b) With block diagram and relevant theory explain the construction and working of electron microscope. What makes the system to work as a high resolving power instrument?
3. (a) What is meant by polarization of light?
(b) Describe an experiment that shows light is not propagated as longitudinal waves.
(c) What is plane of vibration?
4. (a) What is the principle of optical fibre communication?
(b) Discuss various types of fibres for light wave communication.
5. (a) What is Seebeck effect? How can it be utilized in thermometry?
(b) Define Seebeck, Peltier and Thomson Coefficients, and derive a relation between them.
6. (a) Explain, in detail, the terms dielectric loss and dielectric strength.
(b) The relative permittivity of argon at NTP is 1.000435. Calculate the polarizability of the argon atom.
7. Write notes on the following:
 - (a) Magnetic materials
 - (b) Superconductors.
8. (a) Compare the relative merits of the various aircraft materials with suitable example.
(b) Explain in brief the general system requirements for a spacecraft.
