Code :R7100103

R7

B.Tech I Year (R07) 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

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1. (a) What is meant by internal reflection?
   (b) Derive the conditions for maxima and minima due to transmitted light in thin films.
   (c) A parallel beam of light of wavelength 5895 Å is incident on a thin glass plate of refractive index 1.55, such that the angle of refraction into the plate is 60^0. Find the smallest thickness of the glass plate which will appear dark by transmission.

2. (a) Explain how the height of the hall plays an important role in a good auditorium.
   (b) Presence of audience is essential in an auditorium, why.
   (c) Under what condition the balcony should be placed in a good auditorium.

3. (a) What are soft and hard magnetic materials?
   (b) Compare their properties?
   (c) Give some examples of soft and hard magnetic materials.

4. (a) Derive an expression for the interplanar spacing for (h k l) planes of a cubic structure.
   (b) Show that in a simple cubic lattice the separation between successive lattice planes are in the ratio 1:0.71:0.58.

5. (a) What is the principal involved in Semiconductor laser?
   (b) Discuss the construction and working of homojunction semiconductor laser.
   (c) Write the application of semiconductor laser.

6. (a) Mention the advantages of optical fiber communication over the conventional communication system
   (b) Explain the principle of propagation of laser light through optical fiber.
   (c) How the laser beam is propagated through the fiber?

7. (a) Explain thermal conductivity.
   (b) Derive and explain the thermal conductivity of a material.
   (c) Is all thermally good conductors behaves as good electrical conductors?

8. (a) Explain the principle behind the SEM.
   (b) Discuss the properties of the nano particles using SEM image.
   (c) Give the advantage of SEM.

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