Code :R7100103

R7

B.Tech I Year (R07) Supplementary Examinations, December 2010
ENGINEERING PHYSICS
(Common to Civil Engineering and Mechanical Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Deduce an expression for the resolving power of a diffraction grating.
   (b) Explain the difference between dispersive power and resolving power of a grating.
2. (a) How echo is affecting the acoustically good hall and mention their remedies.
   (b) Explain the types of noise and how these noises are controlled.
3. (a) Explain the Type I and Type II superconductors with the help of graph. Also give the examples for the above.
   (b) Discuss the change occur in superconductor when it is placed in a powerful magnetic field.
4. (a) What do you meant by diffraction of X-ray?
   (b) Explain Bragg's law and derive the condition for Bragg's diffraction.
   (c) The spacing between the principle planes of a NaCl crystal is 2.82 Å. It is found that the first order Bragg's refection occur at an angle of 10^0. Calculate the wavelength of X-ray.
5. (a) Explain the pumping method of Electrical discharge.
   (b) Explain the fundamental modes are involved in CO_2 laser is working. Also explain with neat diagram how the CO_2 laser is working.
   (c) Explain the medical and engineering application of CO_2 Laser.
6. (a) Mention the importance of optical fiber communication.
   (b) Draw and explain the working of fiber optical communication system.
7. (a) Define specific heat capacity.
   (b) Derive the unit of specific heat capacity.
   (c) How the materials are classified based on thermal conductivity.
8. (a) Write a short note about nano.
   (b) Write a short note of Nano materials.
   (c) Explain in detail the merits and demerits of TEM.

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