CODE NO: R07A1BS03

2008 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

I B.TECH SUPPLIMENTARY EXAMINATIONS
ENGINEERING PHYSICS
(ALL BRANCH)

AUG/SEP 2008

TIME:3HOUR
MARK:80

ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS.

1. (a) What do you mean by resolving power of an instrument?

(b) Explain Rayleigh's criterion for resolution.

(c) Explain the usefulness of the Rayleigh's criteria for the resolving power of an optical instrument.

2. (a) What do you meant by Acoustics?

(b) Define reverberation.

(c) Explain the basic requirement of acoustically good hall.

3. (a) Define magnetic field intensity and magnetic flux density.

(b) Derive the equation for relating these two.

(c) What are the applications of ferrites.

4. (a) Define number of atoms per unit cell and packing factor.

(b) Obtain the expressions for number of atoms per unit cell and packing factor for SC, BCC and FCC lattices.

5. (a) Classify the laser with major categories and give example for each type.

(b) What is the principle of laser action? Explain briefly population inversion, Active medium and active centre. Explain different pumping methods involved in laser production.

(c) Give any four differences between stimulated emission and spontaneous emission.

6. (a) What are the points are important to mention single mode fiber?

(b) Explain with a block diagram, the basic instrumentation technique adopted to explain the communication system.

(c) A fiber has a core refractive index of 1.44 and cladding refractive index of 1.4. Find its numerical aperture and acceptance angle.

7. (a) Define Einstein's model.

(b) Explain briefly Einstein's model.

(c) Mention the importance of Einsteins model.

8. (a) Mention properties of nano materials and discuss any one of the property in detail.

(b) Discuss various types of nano materials.