

C 14944

Name.....

Reg. No.....

**COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, DECEMBER 2010**

EN 2K 103B—ENGINEERING PHYSICS (B)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. Write a note on testing of optical flats using an air wedge.
2. What is a Quarter and half wave plates. Mention its use.
3. What do you mean by isochromatics and isoclinics.
4. Distinguish between spontaneous and stimulated emission.
5. List the application of X-rays.
6. List and explain the condition for good acoustics.
7. Explain band structure of semiconductors and its classification.
8. With suitable example explain Type I and Type II superconductors.

(8 × 5 = 40 marks)

Module I

1. A With necessary theory explain the colours of thin films by reflected light. Discuss various types of fringes formed.

Or

- B Explain the phenomena of double refraction. Discuss the action of nicol prism as a polariser and an analyser.

(1 × 15 = 15 marks)

Module II

2. A Explain photoelasticity. Define stress and strains at a point and obtain stress optic relation.

Or

- B With a neat sketch explain the working and principle of a semiconductor laser. List its applications.

(1 × 15 = 15 marks)

Module III

3. A Explain how an X-ray spectrometer may be used to study the structure of crystals.

Or

- B Define Piezoelectric effect. Discuss the production and detection of ultrasonics. List some of its applications.

(1 × 15 = 15 marks)

Turn over

2
Module IV

C 14944

4. A Explain the following :—

- (a) LED and its working.
- (b) Solar cell and its operation.
- (c) Working of a photodiode.

Or

B Explain the following :—

- (a) Josephson effect and tunnelling.
- (b) B.C.S. theory.

(1 × 15 = 15 marks)

Module I

1. A With necessary theory explain the colours of thin films by reflected light. Discuss various types of fringes formed.

Or

B Explain the phenomena of double refraction. Discuss the action of nicol prism as a polariser and an analyser.

(1 × 15 = 15 marks)

Module II

2. A Explain photoelasticity. Define stress and strains at a point and obtain stress optic relation.

Or

B With a neat sketch explain the working and principle of a semiconductor laser. List its applications.

(1 × 15 = 15 marks)

Module III

3. A Explain how an X-ray spectrometer may be used to study the structure of crystals.

Or

B Define Piezoelectric effect. Discuss the production and detection of ultrasonics. List some of its applications.

(1 × 15 = 15 marks)

Turn over