C 26939 (Pages 2) Name.....

Reg. No.....

COMBINED FIRST AND SECOND SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION JUNE 2003

EN 2K 103A ENGINEERING PHYSICS (A)

(Common to AI /SS /CE /EE /EC /IT /IC)
(New Scheme)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

I. (a) Explain Newtons rings phenomenon.

(b) Mention the applications of polarised light.

(c) What is wave function ? Explain.

(d) What is NMR ? Explain.

(e) What is population inversion ? Explain.

(f) Discuss about different types of optical fibers.

(g) Explain the characteristics of LDE.

(h) Mention the applications of super conductor.

(8 × 5 = 40 marks)

II. (a) (i) Explain formation of colours by thin films. (8 marks)

(ii) How do you test optical plane surfaces ? Explain in detail. (7 marks)

Or

(b) (i) What is plane transmission gratings ? Explain. (5 marks)

(ii) Discuss about diffraction pattern produced by it with theory. (10 marks)

III. (a) Obtain expressions for wave function and energy for a particle in an one dimensional box. (15 marks)

Or

(b) (i) Explain Piezo-electric effect. (5 marks)

(ii) How Ultrasonic waves are generated ? Explain. (10 marks)

IV. (a) Explain the construction and working principles of semiconductor laser with suitables diagram. (15 marks)

Or

(b) (i) Explain the basic principle of holography and its application. (7 marks)

(ii) Discuss about advantages and applications of fiber optic communication. (8 marks)

Turn over

V. (a) (i) Discuss about N and P-types semiconductors with energy band diagrams. (8 marks)

(ii) Explain the working principle of Light emitting diode. (7 marks)

Or

(b) (i) What is super conductivity ? Explain its properties. (10 marks)

(ii) Explain Josephson effect. (5 marks)