AU–245

# M.Sc. (Part–I) Semester–I (C.B.C.S. Scheme) Examination

## ELECTRONICS

## (Optical Electronic Devices and Applications)

## Paper—1ELE4

Time : Three Hours] [Maximum Marks : 80

**N.B. :—** (1) All questions carry equal marks

(2) Solve **one** question from each alternative.

(3) Draw neat sketches wherever necessary.

1. (a) Explain the optical fabrication process using vapour oxidation deposition. 8

(b) Explain the structure of fibre optic communication. 8

**OR**

(p) Explain the principle of light transmission through fibre in detail. 8

(q) Give the classification of optical fiber and explain one of the light source in fibre optic communication. 8

2. (a) Explain the following terms of light :

(i) Polarization

(ii) Interference. 8

(b) Explain construction and operation of various type of LCD display. 8

**OR**

(p) Explain the following terms of light :

(i) Diffraction

(ii) Dispersion. 8

(q) Explain the construction and operation of LED as optical source. 8

3. (a) Explain construction and working of thermal detectors. 8

(b) Explain construction, resistance-intensity characteristic and application of LDR. 8

**OR**

(p) Explain construction and working of photodetector. 8

(q) Explain construction, working and characteristics of PIN photodiode. 8

4. (a) Draw and explain construction and working of optical pyrometer with any type. 8

(b) Explain construction and working of spectrum analyser with diagram. 8

**OR**

(p) Write the notes on following :

(i) Beam splitter

(ii) Optical filter. 8

(q) Explain the construction and working of spectophotometer with diagram. 8

5. (a) Explain the construction and working principle of semiconductor laser. 8

(b) Explain the following application of laser :

(i) Measurement of Velocity

(ii) Measurement of Acceleration. 8

**OR**

(p) Explain the construction and operation of gas laser. 8

(q) Explain the following application of laser :

(i) Measurement of distance

(ii) Measurement of velocity. 8