

**M.Sc. Part-I (Semester-I) (CBCS Scheme) Examination
ELECTRONICS**

1ELE4 : Optical Electronic Devices and Applications

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) All questions carry equal marks.

(2) Solve one question from each alternative.

(3) Draw neat sketches wherever necessary.

1. (a) Explain the construction of optical fiber communication system with various blocks. 8
- (b) Explain the following terms :
 - (i) Source coupling
 - (ii) Splices and connector. 8

OR

- (p) How optical fibre is fabricated using process of vapour oxidation deposition ? Explain. 8
- (q) Explain the following concepts :
 - (i) Loss and band width limiting mechanism
 - (ii) Mechanical characteristic. 8
2. (a) Explain the terms in case of light :
 - (i) Diffraction
 - (ii) Polarization. 8
- (b) Explain the construction and operation of LED as an optical source. 8

OR

- (p) Explain the following terms :
 - (i) Interference
 - (ii) Dispersion. 8
- (q) State the types of LCD and explain their construction and operation. 8
3. (a) Explain the construction and operation of photomultiplier tube in detail. 8
- (b) Explain the construction and operation of PIN photodiode with its characteristics. 8

OR

- (p) Explain construction, operation and characteristics of LDR. 8
- (q) Explain construction and working of photodetector. 8
- 4. (a) Explain the construction and operation of spectrum analyser with diagram. 8
- (b) Explain the construction and operation of spectrophotometer. 8

OR

- (p) Explain the construction and operation of periscope. 8
- (q) Explain the construction and operation of light intensity meter. 8
- 5. (a) Explain the construction and operation of Liquid Laser. 8
- (b) Explain the following applications of laser in industry :
 - (i) Laser heating
 - (ii) Laser melting and welding. 8

OR

- (p) Explain the construction and operation of semiconductor laser. 8
- (q) Discuss the following applications of laser :
 - (i) Measurement of velocity
 - (ii) Measurement of Acceleration. 8