Et-603/OFC/6th Sem/2014/N

OPTICAL FIBRE COMMUNICATION

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) Write some merits and demerits of optical fibre system. Also write some applications of fibre optics.   6+4=10

   (b) Draw a simple block diagram of a fibre optic system.   4

2. Explain the following terms :   3½×4=14

   (a) Total internal reflection

   (b) Acceptance angle

   (c) Numerical aperture

   (d) Snell's law.

[Turn over

3. (a) With the help of neat diagram, explain the structure of optical fibre. 6

   (b) Classify optical fibre according to the way light propagates the fibre core. Also draw RI profile and transmission nature through them. 8

4. (a) Name three major causes of light losses in fibres. What is dispersion and intramodal dispersion ? 6

   (b) With the help of a neat diagram, explain the construction and working principle of LED. 8

5. (a) Compare LED and LASER diode giving emphasis on fibre optic communication. 6

   (b) Explain the working principle of photodiode. 8

6. (a) What is splicing ? What are different methods used for splicing ? 4

   (b) What are different losses in fibre connectors ? 3

(c) Explain the working principle of fibre optic transmitter with the help of a block diagram.

7

7. Write short notes on any *two* :   7×2=14

(i) Photo multiplier

(ii) Couplers

(iii) Multiplexing

(iv) Lens.