* 4633 *

C14–EC–504

4633

BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2018

DECE—FIFTH SEMESTER EXAMINATION

OPTICAL FIBRE COMMUNICATION

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Classify optical fibers based on refractive index profile.

2. Define Snell's law in optics.

3. Mention different types of dispersions occur in optical fibers.

4. List two types of fiber optic cables.

5. State the need for connectors in FOC.

6. Describe the use of optical power meters in OFC.

7. List three salient features of an optical source.

8. Distinguish between repeaters and optical amplifiers.

9. Define wavelength division multiplexing.

10. State limitations of time division multiplexing (OTDM) in FOC.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Define numerical aperture. 2

(b) Derive the expression for numerical aperture in terms of core and cladding refractive indices. 8

12. *(a)* List different structural elements used for cable design. 4

(b) Describe the characteristics of loose buffered cables. 6

13. Explain about polarization mode dispersion. 10

14. Explain the working of Optical Time Domain Reflectometer (OTDR). 10

15. *(a)* Briefly describe different optical couplers. 4

(b) Explain the working of an optical coupler. 6

16. Explain the construction and working of LASER source. 5+5

17. Explain the construction and working of APD (Reach through APD). 5+5

18. Draw and explain the block diagram of DWDM. 10

★ ★ ★