



C14-EC-504

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**BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2017
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. Define total internal reflection in optical fibre.
2. Define acceptance angle.
3. List two types of fibre optic cables.
4. Classify different types of dispersions occur in optical fibres.
5. State the need for connectors in fibre optical communication.
6. List different types of measuring/testing instruments used in the field of OFC.
7. List the differences between LED and LASER sources.
8. State the principle of LASER.

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9. List two types of WDM systems.
10. List different types of network topologies used in fibre optic networks.

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. Derive the expression for numerical aperture (NA) in terms of core and cladding refractive indices. 10
12. (a) Explain intrinsic and extrinsic losses. 5
(b) Briefly explain polarization mode dispersion. 5
13. (a) Describe the characteristics of loose buffered cable. 5
(b) Describe the characteristics of tight buffered cable. 5
14. Explain the working of isolator with neat diagrams. 10
15. (a) Describe the use of optical power meters. 5
(b) State the function of splice in optical fibres. 5
- * 16. (a) Draw the block diagram of fibre optic communication system and explain each block. 7
(b) State the salient feature of an optical detector. 3
17. (a) Differentiate R, 2R and 3R repeaters. 7
(b) State the salient features of an optical source. 3
18. Describe the use of fibres in Ethernet and Gigabit Ethernet. 10
