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BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DECE - FIFTH SEMESTER EXAMINATION

OPTICAL AND MOBILE COMMUNICATIONS

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. List the advantages of optical fibers over EM wave systems.
2. Define numerical aperture of a fiber.
3. Write the function of splice in optical fibers.
4. Define quantum efficiency of an optical source.
- \* 5. Distinguish between in-band and out-band signalling.
6. Define voice and control channels in mobile communication.
7. Write the need for hexagonal cell site.
8. Distinguish between FDMA and TDMA.
9. List the features of digital cellular system.
10. List the advantages of 3G over earlier systems.

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## PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** Explain the principle of light propagation in optical fiber. 10
- 12.** Draw and explain the block diagram of WDM system. 4+6
- 13.** Draw the block diagram of fiber optic communication system and explain each block. 4+6
- 14.** Explain the pulsed and DTMF dialling with neat sketches. 5+5
- 15.** (a) Define salient features of optical sources. 5  
(b) Briefly explain the evolution of mobile communication system. 5
- 16.** Explain the process of call progress in a cellular telephone system. 10
- 17.** Explain the concept of spread spectrum technique with block diagram. 3+7
- 18.** Explain the architecture of GSM system. 10

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