



C16-EC-504

**6632**

**BOARD DIPLOMA EXAMINATION, (C-16)  
AUGUST/SEPTEMBER—2021  
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. Define single-mode fiber (SMF) and multi-mode fiber (MMF).
2. Define numerical aperture (NA).
3. State the function of splice in optical fibers.
4. List the types of detectors used in OFC.
5. List the advantages of electronic telephone over manual telephone.
6. Define the terms 'mobile station' and 'base station'.
7. State the need for hexagonal cell site.
8. Define hand-off in mobile communication.
9. List the features of digital cellular system.
10. List different IMS applications.

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[ *Contd...*

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## PART—B

- 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.

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|------------|---|----|
| <b>11.</b> | Explain the structure of optical fiber.                         | 10 |
| <b>12.</b> | Draw and explain the block diagram of DWDM.                     | 10 |
| <b>13.</b> | Explain the construction and working of LASER source.           | 10 |
| <b>14.</b> | Explain the block diagram of electronic telephone exchange.     | 10 |
| <b>15.</b> | (a) List the salient features of an optical source.             | 4  |
|            | (b) Explain the limitation of conventional mobile phone system. | 6  |
| <b>16.</b> | (a) Define the terms 'cell' and 'cluster'.                      | 3  |
|            | (b) Explain the capacity of cellular system.                    | 7  |
| <b>17.</b> | Compare FDMA, TDMA and CDMA.                                    | 10 |
| <b>18.</b> | Explain IP multimedia subsystem (IMS).                          | 10 |

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