7642

BOARD DIPLOMA EXAMINATION, (C-20)

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. State any three advantages of light wave communication system over EM wave systems.

2. List two types of detectors used in OFC.

3. List any three limitations of TDM in fiber optic communications.

4. List any three limitations of conventional mobile phone system.

5. Define hand-off in mobile communication.

6. List the three types of multiple access techniques.

7. List various interfaces in GSM architecture.

8. List any three drawbacks of GSM system.

9. Mention any three features of GPRS systems.

10. List any three salient features of 3G system.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

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

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

11. *(a)* Explain light wave propagation in OFC.

(OR)

(b) Define numerical aperture (NA) and derive the expression for NA in terms of refractive indices of core and cladding.

12. *(a)* Explain the construction and working of LASER source.

(OR)

(b) Draw the block diagram of fiber optic communication system and explain each block.

13. *(a)* Explain the evaluation of cellular mobile communication system.

(OR)

(b) Explain in-band and out-band signaling system in telephony.

14. *(a)* Explain the concept of frequency reuse.

(OR)

(b) Explain the frame structure of a TDMA.

15. *(a)* Explain the frequency spectrum of GSM system.

(OR)

(b) Compare the features of GSM, GPRS and EDGE systems.

PART—C

10×1=10

16. Which multiple access technique uses pseudo numeric code or unique code in mobile communication? Explain it.

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