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3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.

**Marks**

1. (A) Attempt any THREE : 3 × 4 = 12

- (a) State any six advantages and two disadvantages of optical communication system.
- (b) What is meant by splicing of an optical fiber ? Mention any one method of splicing.
- (c) Describe the call making procedure from mobile handset to the land-line phone unit.
- (d) Explain authentication process in GSM.

(B) Attempt any ONE : 1 × 6 = 6

- (a) Draw the frequency Re-use pattern with cluster size 7 and 12. State the advantages of frequency Re-use.
- (b) Describe 3GW-CDMA with necessary diagram.

2. Attempt any FOUR : 4 × 4 = 16

- (a) Define the following terms :
- |                  |                  |
|------------------|------------------|
| (i) Reflection   | (ii) Diffraction |
| (iii) Absorption | (iv) Dispersion  |
- with the help of light theory.

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- (b) State four requirements of optical detector.
- (c) Compare CDMA and TDMA. (any four points)
- (d) State any four features of IS-95.
- (e) Describe any four advantages of 3G wireless network.
- (f) Compare 3G CDMA with 3G TDS CDMA. (any four points)

3. **Attempt any TWO :**

**2 × 8 = 16**

- (a) Compare multimode step index and multimode graded index fiber.
- (b) Draw the block diagram of mobile unit. State the function of logic and control unit in mobile handset.
- (c) Explain any four various GSM services and four features of GSM.

4. **(A) Answer any THREE :**

**3 × 4 = 12**

- (a) Draw and explain block diagram of optical fiber communication.
- (b) Explain the working principle of LASER with neat diagram.
- (c) Describe the method for improvement of coverage area of cellular system.
- (d) Explain evaluation for 2.5 G TDMA standards.

**(B) Attempt any ONE :**

**1 × 6 = 6**

- (a) What is hand-off? List different types of hand-off and explain any one in detail.
- (b) Draw and explain GSM system architecture.

**5. Attempt any TWO :****2 × 8 = 16**

- (a) Draw the labelled block diagram of cordless telephone system and explain in operation.
- (b) Draw the block diagram of OTDR and explain its working.
- (c) Draw and explain IMT 2000 network architecture.

**6. Attempt any FOUR :****4 × 4 = 16**

- (a) What is Scattering ? Explain in brief.
  - (b) Explain with neat diagram working principle of Avalanche photodiode.
  - (c) Describe the co-channel interference and adjacent channel interference.
  - (d) Draw neat diagram of GSM reference Architecture.
  - (e) Draw neat diagram of ferrule connector and explain in brief.
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