17669

21718

3 Hours / 100 Marks   Seat No.

Instructions :

(1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any THREE :   **3 × 4 = 12**

(a) Draw and explain block diagram of fiber optical communication.

(b) Explain with neat diagram working principle of LED.

(c) State the four requirement of optical detector.

(d) State the advantages of cellular mobile services.

(e) Draw and explain cellular mobile transmitter in detail.

(B) Attempt any ONE :   **1 × 6 = 6**

(a) Draw the frequency spectrum for communication and show the region for optical fiber communication and explain.

(b) What is splicing of an optical fiber ? Explain any two methods of splicing in detail.

2. **Attempt any FOUR :** 4 × 4 = 16

   (a) Define :

      (i) Critical angle

      (ii) Numerical Aperture

   (b) Draw and explain step index fiber with example.

   (c) Describe the call making procedure from mobile handset to landline phone unit.

   (d) Draw and explain basic typical cellular telephone system.

   (e) Explain CDMA system with its architecture.

   (f) Describe co-channel interference in cellular system.

3. **Attempt any FOUR :** 4 × 4 = 16

   (a) Differentiate between single mode and multimode fiber.

   (b) Explain intramodel dispersion in optical fiber.

   (c) Draw the labelled block diagram of paging system and explain its operation.

   (d) State four way to improve coverage and capacity of cellular system.

   (e) Describe the adjacent channel interference in cellular system.

4. **(A)** **Attempt any THREE :** **3 × 4 = 12**

    (a) State the features of GSM.

    (b) State the various services offered by GSM in detail.

    (c) What is WLL ? Describe with suitable diagram.

    (d) Explain in brief IMT 2000.

  (B) **Attempt any ONE :** **1 × 6 = 6**

    (a) Draw and explain the block diagram of OTDR.

    (b) Draw and explain GSM Reference Architecture.

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

  (a) Describe attenuation in optical fiber.

  (b) Draw the block diagram of mobile unit. State the function of logic unit and control unit in mobile Handset.

  (c) Compare GSM with IS – 95.

  (d) List GSM air interface specifications.

  (e) Explain evaluation for 2.5 G TDMA standards.

  (f) Describe the important feature of 3G-CDMA-2000.

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

(a) Describe the concept of frequency reuse. Draw two frequency reuse patterns.

(b) Explain Authentication process in GSM.

(c) Draw and explain GSM system Architecture.

(d) Describe 3G-TD-SCDMA with respect to spectrum utilization, bandwidth, data rate and antenna.

(e) Describe the advantage of 3G wireless network system.

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