

17669

15162

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.
- (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 :

12

- (a) Draw and explain cross-sectional diagram of fiber optical cable.
- (b) Explain working principle of OTDR with block diagram.
- (c) With neat diagram, explain working of paging system.
- (d) Explain intermodal dispersion.

(B) Attempt any ONE :

6

- (a) Draw the frequency spectrum for communication and show the region for fibre optical communication. Write advantages and disadvantages of FOC.
- (b) State function of logic unit and control unit of mobile handset and draw diagram of mobile unit.

- 2. Attempt any FOUR :** **16**
- (a) Explain absorption losses in brief.
 - (b) Draw and explain cell splitting and sectoring.
 - (c) Classify types of optical fibre with respect to index profile and mode of propagation of light.
 - (d) Explain cellular telephone system with neat diagram.
 - (e) Define radiation loss and coupling loss.
- 3. Attempt any TWO :** **16**
- (a) Define frequency reuse. Draw frequency reuse pattern with cluster size 7.
 - (b) Draw the cordless telephone system and explain it.
 - (c) Define : (i) Reflection, (ii) Diffraction, (iii) Absorption, (iv) Dispersion with the help of light theory.
- 4. (A) Attempt any THREE :** **12**
- (a) State type of interference in mobile communication. Explain any one with diagram.
 - (b) Draw and explain construction and working principle of avalanche photodiode.
 - (c) Explain construction and working principle of LASER.
 - (d) Compare GSM with IS-95 with respect to :
 - (i) Modulation technique used
 - (ii) Multiple access technology used
 - (iii) Uplink frequency
 - (iv) Downlink frequency
- (B) Attempt any ONE :** **6**
- (a) State IMT 2000 services.
 - (b) Draw GSM architecture and state function of any three blocks.

- 5. Attempt any TWO :** **16**
- (a) List the important features of 3G-CDMA 2000. (Any eight)
 - (b) Explain the meaning of Hand-off. List the different types of Hand-off and explain any two.
 - (c) Describe operation of WLL with suitable diagram and state any two features of WLL.
- 6. Attempt any FOUR :** **16**
- (a) List any four features of each :
 - (i) EDGE for 2.5G GSM
 - (ii) IS-136
 - (b) Explain how call processing takes place IS-95 CDMA.
 - (c) State the function of following GSM channels :
 - (i) Broadcast channel
 - (ii) Slow associated dedicated channel
 - (iii) Fast associated dedicated channel
 - (iv) Stand alone dedicated channel
 - (d) Explain the following splicing techniques :
 - (i) Fusion
 - (ii) V-grooves
 - (e) Draw system architecture of IS-95 and explain working of any two blocks.
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