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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) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

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

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

Marks

1. (A) Attempt any THREE of the following : **12**

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

(ii) Draw the block diagram of logic unit in mobile handset and explain it.

(iii) Explain concept of frequency reuse. Draw frequency reuse pattern with cluster size 7.

(iv) Describe the term microcell zone concept for capacity improvement.

(B) Attempt any ONE : **6**

(i) Draw the GSM architecture and write function of each block.

(ii) Define following components :

(a) Mobile station

(b) Forward channel

(c) Base station controller

(d) MSC

(e) Roaming

(f) Transceiver

2. Attempt any FOUR : **16**

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

(ii) Explain adjacent channel interference in cellular system and how they are reduced.

(iii) Describe the function of HLR & OMC in GSM.

(iv) Describe IS–95 B for 2.5 G CDMA.

(v) What is the need of adhoc network ?

3. Attempt any FOUR : **16**

(i) Explain IMT 2000 services.

(ii) Describe evolution for 2.5 G TDMA standards.

(iii) Draw system architecture of IS-95. Explain working of any two blocks.

(iv) State and explain types of sectoring.

(v) Draw and explain cellular transmitter.

(vi) Write features of Bluetooth. (4 points)

4. (A) Attempt any THREE: **12**

(i) Draw and explain architecture of 4G wireless system.

(ii) Explain HSCSD for 2.5 G GSM.

(iii) Describe call processing in GSM system with suitable diagram.

(iv) Compare CDMA, FDMA & TDMA in terms of concept, key resources, sharing of resources, bandwidth, system flexibility and system complexity.

(B) Attempt any ONE : **6**

(i) Illustrate SS7 protocol architecture with labelled diagram and state services offered by SS7 system.

(ii) What is Hand-off ? List different types of hand-off. Explain any two in detail.

5. Attempt any FOUR : **16**

(i) Compare UMTS with CDMA 2000.

(ii) Explain GPRS for 2.5 G GSM and IS-136.

(iii) Describe the function of GSM traffic channels & GSM control channels.

(iv) Explain the concept of cell splitting using suitable diagram.

(v) Draw neat block diagram of frequency synthesizer and label the blocks. Explain its working.

(vi) State the various services offered by GSM system.

6. Attempt any FOUR : **16**

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

(ii) Compare GSM with IS-95.

(iii) Explain EDGE for 2.5 G GSM & IS-136.

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

(v) Describe the important features of 3G-CDMA-2000.

(vi) Draw the block diagram of forward CDMA channel modulation process.

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