

17657

21718

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--	--

- 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) Define the following terms with the help of diagram :
 - (i) Cell
 - (ii) Cluster
 - (b) List the specifications of IS-95B 2.5G.
 - (c) Which system is best from GSM, IS-136 & IS-95 ? Justify your answer with any four points.
 - (d) State the range of frequency access method and modulation type used in AMPS & GSM.
- (B) Attempt any ONE : 6
- (a) Explain GSM radio subsystem and list any four GSM air interface specifications.
 - (b) Illustrate the process of call routing in mobile communication system.

- 2. Attempt any FOUR :** **16**
- (a) Describe the effect of co-channel interference in mobile communication. How it affect system capacity ?
 - (b) State the advantages of 3G wireless network system. (any four)
 - (c) State the features of 3G-WCDMA.
 - (d) Compare GPRS standard with IS-95B standard with respect to
 - (i) Backward compatibility
 - (ii) Channel Bandwidth
 - (iii) Data rate
 - (iv) Number of voice channels
 - (e) Draw and explain architecture of 4G wireless system.
 - (f) Draw the frequency reuse pattern with cluster size 7 & 12. State the advantages of frequency reuse.
- 3. Attempt any FOUR :** **16**
- (a) Draw the block diagram of receiver unit of mobile handset and state its function.
 - (b) Draw GSM protocol model and describe any one layer.
 - (c) Describe microcell zone concept with suitable diagram.
 - (d) Draw the architecture of WLL. Write its applications.
 - (e) Draw SS-7 protocol architecture. Write any two features of SS-7.
- 4. (A) Attempt any THREE :** **12**
- (a) List the objectives of IMT 2000.
 - (b) Write the important features of GSM and state the services offered by GSM.
 - (c) State any four features of HSCSD for 2.5G GSM.
 - (d) Define the term cell splitting.
- (B) Attempt any ONE :** **6**
- (a) Define the term handoff. State the different types of handoff used in cellular system. Explain MAHO.
 - (b) Describe signalling traffic control tasks in SS-7.

5. Attempt any FOUR :

16

- Draw block diagram of control unit with handset. Explain its operation.
- Differentiate between paging system and cordless telephone system. (any four points)
- Draw reverse channel structure of IS-95 CDMA. Write function of each channel in it.
- Describe 3G-TD-SCDMA with respect to spectrum, utilization, bandwidth, data rate and antenna.
- State the features of bluetooth.
- How repeaters are used for range extension of cellular system ?

6. Attempt any FOUR :

16

- Identify and complete given block diagram. (Figure No. 1) State the function of identified blocks.

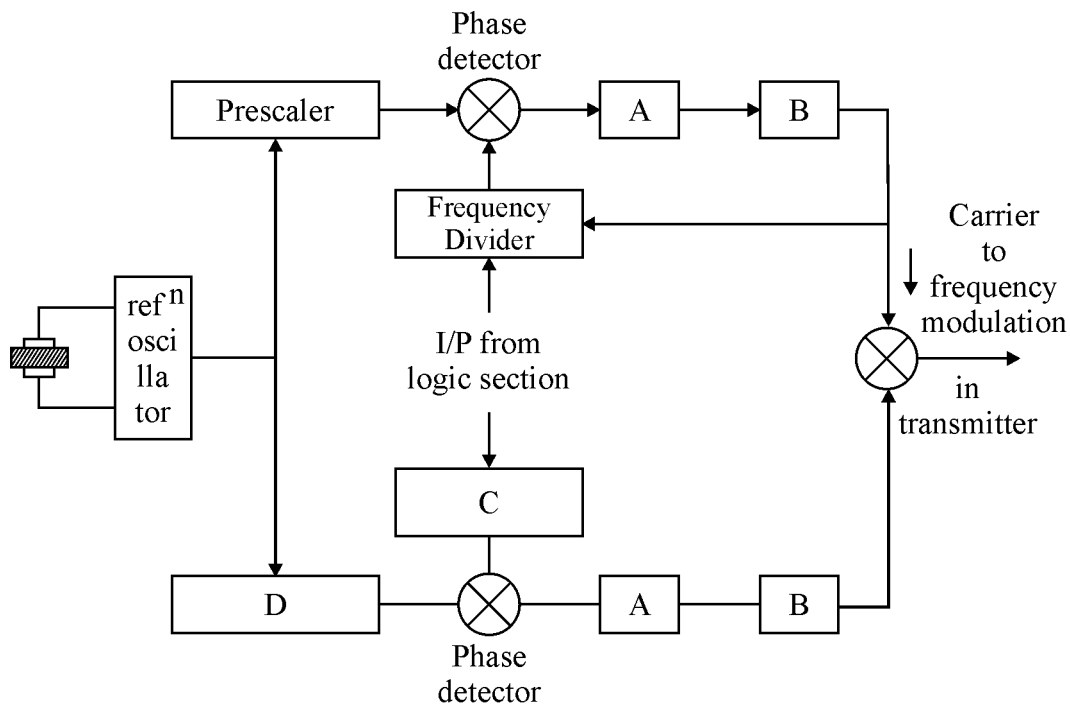


Figure No. 1

P.T.O.

- (b) Compare GSM with CDMA with respect to following points :
- (i) Hand off used
 - (ii) Modulation used
 - (iii) Number of users
 - (iv) Channel Bandwidth
- (c) Describe the concept of channel blockage and call drops.
- (d) Identify and complete given block diagram. State function of each block.
(Figure No. 2)

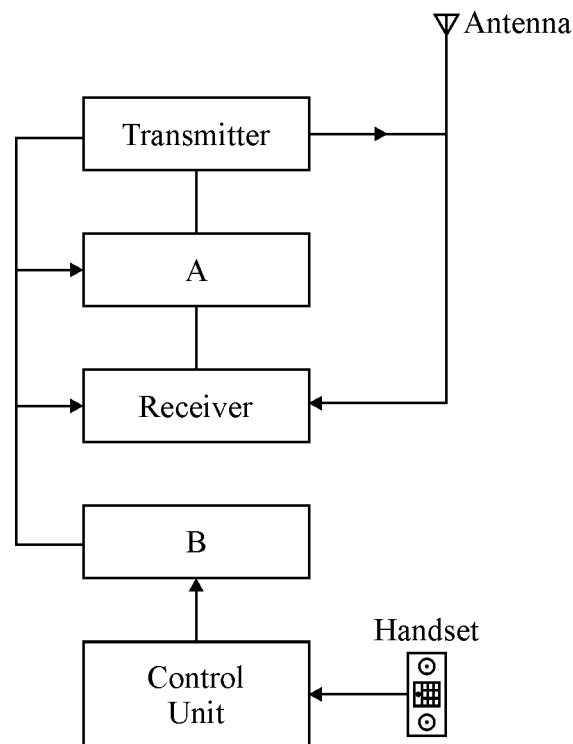


Figure No. 2

- (e) Draw IS-95 system architecture and explain working of MSC & HLR block.
-