

Sample Test Paper - I

Course Name : Electronics Engineering Group

Course Code : EJ/ET/EX/EN/ED/EI/DE

Semester : Sixth

Subject Title : Mobile Communication

Marks : 25

17657

Time:1 Hour

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. Preferably, write the answers in sequential order.

Q1. Attempt any THREE

09 Marks

- a) If 20 MHz of total Spectrum is available for duplex system which uses 225 KHz Simplex channels to provide full duplex voice and control channels, compute number of channels available per cell if a system uses 7 cell frequency reuse pattern.
- b) What is Hand off? List any four types of Hand off.
- c) List any three services provided by GSM standard.
- d) Draw block diagram of basic cellular system.

Q2. Attempt any TWO

08 Marks

- a) Illustrate concept of cell sectoring. State the effect of cell sectoring on co-channel interference?
- b) Draw block diagram of Logic unit and write the functions of each block.
- c) Differentiate system used around the world (AMPS, IS 95, GSM and NAMPS) with the following points.
 - i) Year of introduction
 - ii) Frequency range used
 - iii) Modulation used
 - iv) Channel Bandwidth

Q3. Attempt any TWO

08 Marks

- a) Give the classification of GSM logical channels.
- b) Illustrate micro-cell zone concept with the help of neat sketch.
- c) Illustrate the process of call initiation from landline telephone to cellular phone with timing diagram

Sample Test Paper - II

Course Name : Electronics Engineering Group

Course Code : EJ/ET/EX/EN/ED/EI/DE

Semester : Sixth

Subject Title : Mobile Communication

Marks : 25

17657

Time:1 Hour

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. Preferably, write the answers in sequential order.

Q1. Attempt any THREE

09 Marks

- a) List any 3 specifications of GPRS.
- b) Which system supports the following features?
 - i) Packet data rate: 384 kbps
 - ii) channel bandwidth : 1.6 MHz
 - iii) Duplexing Method : TDD
- c) Define the following terms
 - i) Voice channel blockage
 - ii) Voice quality
 - iii) Word error rate
- d) State any three parameters with specification of Bluetooth.

Q2. Attempt any TWO

08 Marks

- a) Draw SS7 protocol architecture and give the function of Message Transfer Protocol (MTP).
- b) Differentiate UMTS and CDMA with the following points
 - i) Bandwidth
 - ii) Modulation technique
 - ii) Frame rate
 - iv) Data rate
- c) Draw Wireless local loop and write function of each block.

Q3. Attempt any TWO

08 Marks

- a) Draw 4G wireless architecture and list its characteristics.
- b) Distinguish between GPRS standard with IS-95B with respect to following points.
 - 1) Backward Compatibility
 - 2) Channel Bandwidth
 - 3) Duplexing Technique
 - 4) Data rate
- c) State any four specification of Personal Area Network(PAN).

Sample Question Paper

Course Name : Electronics Engineering Group

Course Code : EJ/ET/EX/EN/ED/EI/DE

Semester : Sixth

Subject Title : Mobile Communication

Marks : 100

17657

Time: 3 Hours

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. Preferably, write the answers in sequential order.

Q1. (A) Attempt any THREE

12 Marks

- a) Define the term Handoff? State the different strategies of Hand-off and name the Hand-off used in IS-95 system.
- b) List the following specification of EDGE2.5 G standards.
 - i) Data rate
 - ii) Modulation technique
 - iii) Channel Bandwidth
 - iv) Duplexing technique
- c) Which system is best from GSM, IS 136 and IS 95? Justify your answer with any 4 points
- d) Illustrate the general operation of cordless telephone system with block diagram.

Q1. (B) Attempt any ONE

06 Marks

- a) Draw the GSM architecture and write function of each block.
- b) Illustrate the process of call initiation from landline telephone to cellular phone with timing diagram.

Q.2 Attempt any FOUR.

16 Marks

- a) Illustrate concept of cell sectoring with diagram.
- b) State any four specification of CDMA-2000.
- c) Name the system **A** and **B** which supports following features.

Parameter	A
Frequency Band	2400-2483.5 MHz
Duplexing Method with Frequency Hopping	TDD
Channel Bandwidth	1 MHz
Modulation Technique	GFSK

Parameter	B
Packet Data Rate	384 kbps
Duplexing Method	TDD
Channel Bandwidth	1.6 MHz
Antenna Used	Smart Antenna

- d) Distinguish between GPRS standards with IS-95B w.r.t
 - i) Backward compatibility ii) Channel bandwidth
 - iii) Data rate iv) Number of voice channels
- e) Give any four applications of MANET.
- f) Calculate the capacity for cluster size of 7 in cellular system which has 504 radio channels available for handling traffic. Calculate number of channels per cell. If number of cluster available in cellular system are 7 then calculate capacity of system.

Q3. Attempt any FOUR.

16 Marks

- a) Draw block diagram of cellular transmitter and write the function of each block.
- b) Illustrate signal flow sequence for call in GSM.
- c) Draw micro-cell zone concept and write how it can be used to minimize number of handoff.
- d) State any four specifications of UMTS.
- e) State the services of SS7 in detail.

Q4. (A) Attempt any THREE.

12 Marks

- a) State any four specifications of IMT 2000.
- b) Give classification of GSM logical channels.
- c) List down the features of HSCSD 2.5G w.r.t
 - i) Channel bandwidth ii) Duplexing method
 - iii) Data rate iv) Backward compatibility
- d) What is cell splitting? State its types.

Q4. (B) Attempt any ONE.

06 Marks

- a) Draw system architecture of cellular system and write its operation.
- b) Illustrate SS7 protocol architecture with labeled diagram and write the function of each layer.

Q5. Attempt any FOUR.

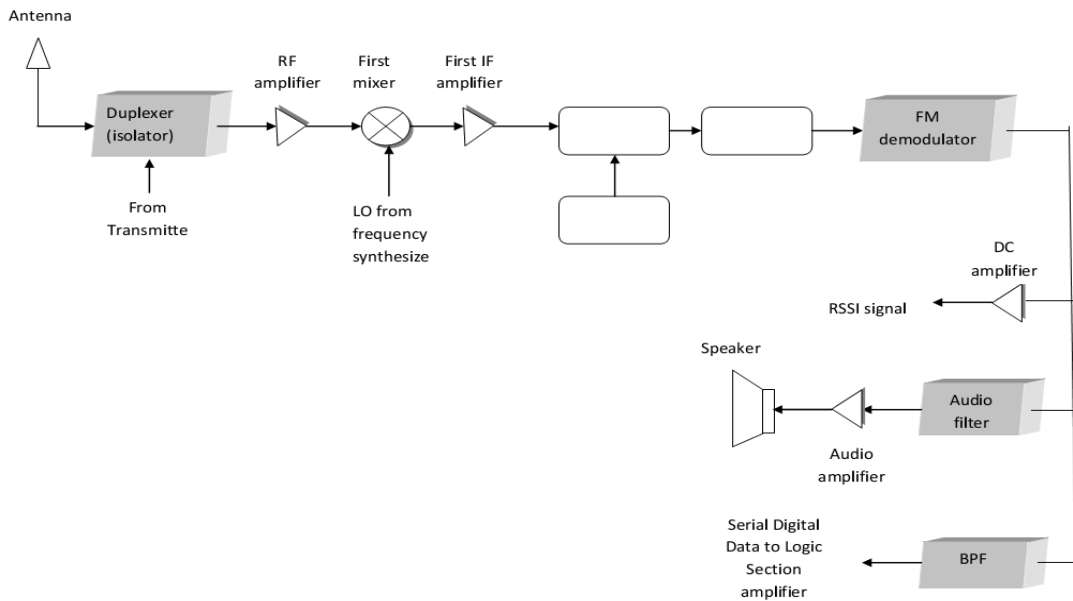
16 Marks

- a) Draw block diagram of Logic unit and write the function of each block.
- b) Compare AMPS, IS-95, GSM and NAMPS w.r.t. Frequency band and Channel bandwidth.
- c) Draw forward channel structure of IS-95 and write function of each channel in it.
- d) Draw Wireless Local Loop and write any four benefits of wireless local loop.
- e) Give importance of blockage, voice channel blockage, word error rate and call drop in cellular communication system.
- f) Define mobile base station, mobile control station, co-channel interference and system capacity.

Q6. Attempt any FOUR.

16 Marks

- a) Identify and complete given block diagram. Also write frequency ranges at the output of IF amplifier.

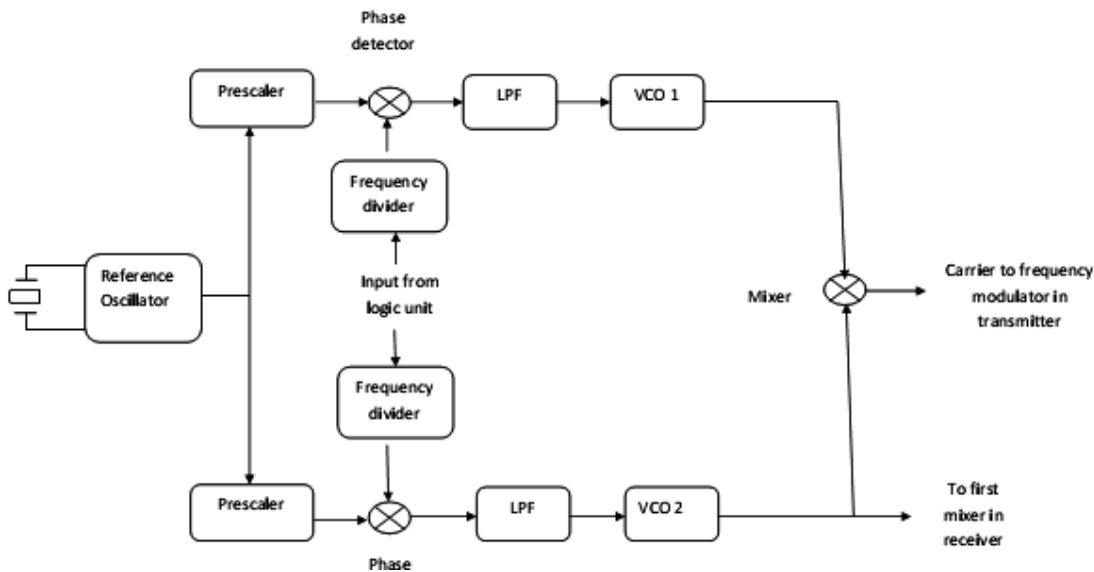


- b) Differentiate GSM and IS-95 w.r.t.

- i) Frequency range
- ii) Channel bandwidth
- iii) Radio interface
- iv) Hand off

- c) Illustrate operation of wireless LAN in Ad-hoc mode with neat and labeled diagram.

- d) Identify the given block diagram. State the effect of change in divide by number obtains from logic unit to frequency divider block on transmitter and receiver channel frequency.



- e) Draw network reference model of IS 95 and explain it.