

Total No. of Questions : 10]

SEAT No. :

P3657

[Total No. of Pages : 2

[4859] - 1057

B.E. (Electronics) (Semester - I)
MOBILE COMMUNICATION
(2012 Pattern) (Elective - II)

Time : $2\frac{1}{2}$ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.
- 5) Assume suitable data, if necessary.

Q1) a) Explain the call processing in mobile communication using flow diagram. [5]

b) Explain the free space propagation model. [5]

OR

Q2) a) Find the 3-dB bandwidth for a Gaussian low pass filter used to produce 0.25 GMSK with a channel data rate of $R_b = 270$ Kbps. What is the 90% bandwidth in the RF channel? Specify the Gaussian filter parameter α . [5]

b) Differentiate between equalizer and diversity techniques. [5]

Q3) a) Describe the evolution of generation of mobile communication. [5]

b) Classify & describe spread spectrum modulation techniques. [5]

OR

Q4) a) In the us digital cellular system if $P_c = 900$ MHz and the mobile velocity is 70 km/hr, calculate the received carrier frequency if the mobile

- i) directly toward the transmitter (Positive Doppler shift),
- ii) directly away from transmitter (Negative Doppler shift) and
- iii) In a direction perpendicular to the direction of the arrival of the transmitted signal.

b) Brief a note on Brewster angle.

[10]

P.T.O.

- Q5) a)** Describe the following characteristics of speech signal-probability density function, Auto Correlation Function, Power Spectral Density Function. [10]
- b) List the criterias for selection of speech coders for mobile communication. [8]

OR

- Q6) a)** Explain packet radio access techniques using the ALOHA protocol and compare i-persistent, non-persistent and p-persistent CSMA techniques. [10]
- b) With neat block diagram explain the function of each block of GSM speech encoder. [8]
- Q7) a)** Describe the working principle of common channel signalling techniques. [8]
- b) Describe the fixed network transmission hierarchy system in detail. [8]

OR

- Q8) a)** Explain the network architecture of UMTS. [8]
- b) Explain cellular packed switched architecture for PCN. [8]
- Q9) a)** Describe the architecture of GSM system. [8]
- b) Classify & explain in brief the significance of forward & reverse channel in CDMA. [8]

OR

- Q10) a)** Explain the call set up process from mobile to mobile of GSM system. [8]
- b) List out the specification of IS-95 CDMA system and compare GSM and CDMA system. [8]

