Q. Paper code

(3 Hours) [Total marks: 80]

Note:

1) Question no. 1 is compulsory.
2) Write any three questions from remaining five questions.
3) Assume suitable data if necessary.

Q.1 Answer any four (20)

a) With respect to trunking theory describe following terms:
i) Busy Hour ii) Traffic intensity A iii) Average call arrival rate H iv) Average call duration v) Trunking efficiency & GoS

b) Calculate gross data rate of GSM

c) Discuss IS 95 CDMA forward channels.

d) Which modulation techniques are used for uplink and downlink in LTE and discuss their advantages.

e) List out advantages of SDR in communication.

Q.2 (20)

a) There are six co channel cells in the first tier, and all of them are at the same distance from the mobile (N=7). If a signal to interference ratio of 15dB is required for satisfactory forward channel performance of a cellular system, Calculate frequency reuse factor and cluster size that should be used for maximum capacity if path loss exponent is η=3 and η =4.

b) Why Propagation Path Loss is one of the major parameters of interest in analysis of radio wave propagation for mobile communication? Discuss free space propagation Model and derive an expression for the received power.

Q.3 (20)

a)Compare and contrast WCDMA with CDMAone for various performance measures.

b) GSM provides 'on the air privacy' security feature during voice calls.Justify.

Q.4 (20)

a) What are the reasons for intra-cell handover? Discuss different possible handover scenarios in GSM?

b) Compare GPRS and EDGE with technical and functional differences. How higher data rates are achieved in EDGE?

Q.5 (20)

a) Discuss the main elements of the LTE-SAE network of EPC (Evolved Packet Controller).

b) Discuss cell search and synchronization in 3G

Q.6 (20)

a) How mapping of channels is achieved with layers in LTE protocol layers?

b) What is Multi antenna technology? Explain MIMO with its advantages and applications

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