Total No. of Questions : 10]

SEAT No. : [ ]

PA-273

[Total No. of Pages : 3

[5927] - 157
B.E. (E & TC) (Semester - II)
MOBILE COMMUNICATION
(2015 Pattern) (404189)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates :

1) ***Solve 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) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Use of logarithmic tables slide rule, mollies charts, electronic pocket calculator and stem tables is allowed.***
5) ***Assume suitable data, if necessary.***

Q1) a) Draw and explain input controlled time division space switch? **[6]**

b) During a busy hour, 1400 calls were offered to a group of trunks and 14 calls were lost. The average call duration has 3 minutes. Find **[4]**

i) Traffic offered
ii) Traffic carried
iii) GOS
iv) The total duration of period of congestion

OR

Q2) a) Draw & explain principle of grading. **[6]**

b) If a group of 4 trunks is offered 3 Erlang of traffic. Find **[4]**

i) Grade of service
ii) The probability that only one trunk is busy
iii) The probability that only one trunk is free
iv) The probability that at least one trunk is free

Q3) a) Design two stage switching network for 64 incoming and 36 outgoing trunks using. Switch size 3×4? Calculate number of cross points required? **[5]**

b) Discuss the various types of interferences in GSM. **[5]**

OR

P.T.O.

Q4) a) Define the following : **[5]**

i) Average Holding Time

ii) CCR

iii) Erlang

iv) Busy Hour

v) Traffic Intensity

b) For a given telephone system with MTBF of 98 Hours & MTTR of 1 Hour. Calculate availability and unavailability for a single processor system for 10 years. **[5]**

Q5) a) Explain the following terms related with GSM system **[8]**

i) HLR

ii) VLR

iii) AUC

iv) EIR

b) Explain different radio transmission parameters used in GSM. **[8]**

OR

Q6) a) Explain different interfaces used within NSS. **[4]**

b) Explain different services used in GSM. **[4]**

c) Explain the following terms related with GSM. **[8]**

i) SIM

ii) IMSI

iii) TMSI

iv) Cipher Key

v) IMEI

vi) EIR

vii) Mobile Terminal

Q7) a) Draw & explain SMS architecture for point to point services. **[9]**

b) Draw & explain handover mechanism in GSM. **[8]**

OR

Q8) a) Draw & explain mobile terminated call procedure used in GSM. **[9]**

b) Draw & explain time slot data burst structure used in GSM. **[8]**

Q9) a) State the specifications of 4G LTE with following parameters. **[4]**

i) Switching method

ii) Channel Bandwidth

iii) Modulation

iv) Peak data rate

b) Discuss the requirements of 5G Networks. **[5]**

c) Compare 1G to 5G with following parameters. **[8]**

i) Data rates

ii) Multiple access technique

iii) Services

iv) Carrier frequency

OR

Q10)a) Compare GSM, UMTS & Gprs related with following parameters **[8]**

i) Access Rate

ii) Carrier Bandwidth

iii) Frame Duration

iv) Spectrum

b) Explain TDD frame structure in LTE. **[5]**

c) Draw & explain open wireless 5 G architecture. **[4]**

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