Total No. of Questions :6]

SEAT No. :

P137

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APR. -16/BE/Insem. - 44
B.E. (E &TC)
MOBILE COMMUNICATION
(2012 Course) (Semester - II) (404189)

Time : 1Hour] *[Max. Marks :30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn whenever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Derive the first Erlang Distribution for Lost call systems. **[5]**

b) During busy hour, 1000 calls were offered to a group of trunks & 5 calls were lost. The average call duration was 2 minutes. **[5]**

i) Find Traffic offered,

ii) Traffic carried,

iii) Traffic lost,

iv) Grade of service,

v) Total duration of periods of congestion.

OR

Q2) a) State and explain switching functions of switching system. **[6]**

b) On an average, one call arrives every 5 seconds. During a period of 10 seconds. What is probability that **[4]**

i) No call arrivals

ii) More than 1 call arrives

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Q3) a) Define Grade of service & blocking probability for lost call system and explain its significance. **[6]**

b) Given MTBF= 1000 hrs and MTTR = 2 hrs. Calculate the unavailability for dual processor systems for 10 years and 30 years. **[4]**

OR

Q4) a) Compare and contrast between in channel and common channel signaling. **[6]**

b) Design two stage switching network for connecting 200 incoming trunks to 200 outgoing trunks & find number of cross points. **[4]**

Q5) a) With a neat diagram, explain the terms: **[6]**

i) Cell splitting,

ii) Cell sectoring.

b) For given path loss component n = 4 and frequency reuse factor of N = 7 calculate S/I ratio in a cellular system. **[4]**

OR

Q6) a) With the help of neat diagram explain the three basic propagation mechanisms of signal in mobile communication system. **[6]**

b) A spectrum of 30 MHz is allocated to a wireless FDD cellular system which uses two 25 KHz simplex channels to provide full duplex voice and control channels, compute the number of channels available per cell if a system **[4]**

i) uses seven cell reuse and

ii) 12 cell reuse.

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