Total No. of Questions : 8]

SEAT No. : ____

PA-1491

[Total No. of Pages : 2

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T.E. (E&TC Engg.)

CELLULAR NETWORK

(2019 Pattern) (Semester-II) (304192)

Time : 2½ 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, and Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume suitable data if necessary.***
5) ***Use of calculators is allowed.***

Q1) a) Explain the concept of frequency reuse in mobile Cellular System. **[6]**

b) What is Cell sectoring? How does it help to improve the capacity of mobile Cellular System? **[6]**

c) Write Short note on basic radio transmission parameters of the GSM system. **[6]**

OR

Q2) a) What is Handoff? Why is it necessary in mobile Cellular System? Explain mechanism of handoff. **[9]**

b) Draw a neat diagram of GSM Architecture and explain the function of each block in it. **[9]**

Q3) a) Explain the concept of Link-budget Analysis along with the expression. **[8]**

b) Explain in details the Tele-traffic system model. **[9]**

OR

Q4) a) Derive the first Erlang distribution for lost call system. **[8]**

b) Consider a cellular system with N=48 channels per cell, and blocking probability PB=0.02=2%. The traffic per user is A0=0.04E. The cell radius is 1km. What is the number of users that can be supported in a city of 603 km^2 area? **[9]**

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Q5) a) Draw and explain LTE network architecture. **[9]**

b) Compare various IEEE 802.11(802.11, 802.11a, 802.11b, 80.211g,80.211n) standards. **[7]**

c) List various simulators used for simulation of wireless network. **[2]**

OR

Q6) a) With neat schematic explain open wireless architecture of 5G **[9]**

b) Compare all mobile standards (1G to 5G) for following parameters: **[9]**

Year of Implementation, standard used, technology, multiple access technique used, data rates, switching technique, frequency spectrum used, services provided, Advantages & disadvantages.

Q7) a) Explain the use of network coding to improve throughput, robustness, complexity, security. **[8]**

b) Explain the classification of scheduling algorithm, and explain the types of scheduling. **[9]**

OR

Q8) a) Explain Radio resource scheduling. **[8]**

b) Explain network performance parameters used to provide better quality of experience (QoE) in wireless network. **[9]**

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