

Total No. of Questions : 8]

SEAT No. :

PA-1491

[Total No. of Pages : 2

[5926]-111

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 $P_B=0.02=2\%$. The traffic per user is $A_0=0.04E$. The cell radius is 1km. What is the number of users that can be supported in a city of 603 km² area? [9]

P.T.O.

- Q5)** a) Draw and explain LTE network architecture. [9]
b) Compare various IEEE 802.11(802.11, 802.11a, 802.11b, 802.11g,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]

