

Total No. of Questions : 8]

SEAT No. :

PC1779

[6353]-98

[Total No. of Pages : 2

T.E. (E & TC)

CELLULAR NETWORKS

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer questions - Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume Suitable data, if necessary.

- Q1)** a) Illustrate cell splitting in Cellular system. What is a microcell? [6]
b) What are the reasons for choosing Hexagonal cells? [5]
c) Define Frequency reuse and also illustrates the frequency reuse factor derivation. [6]

OR

- Q2)** a) Explain in detail with diagram Cellular Network Architecture. [8]
b) List types of handoffs. With neat diagram, describe the significance of handover in cellular systems with algorithm. [9]

- Q3)** a) Derive an expression to measure required transmitted power at station with link budget expression. [6]
b) Over a 20 min observation interval, 40 subscribers initiate calls. Total duration of calls is 4800 sec. Calculate load offered to N/W by subscribers and average subscribers traffic. [6]
c) Derive the first Erlang Distribution for Lost Call system. [6]

OR

- Q4)** a) How link budget analysis is carried out? Explain in detail. [6]
b) Define blocking probability. With neat diagram and assumptions explain tele-traffic system model. [6]
c) Explain Grade of Service and offered traffic with the help of equation. [6]

P.T.O.

- Q5)** a) With the help of Block diagram Illustrate LTE architecture. [6]
b) Differentiate between adhoc network and infrastructure based wireless network. [6]
c) Explain 5G with its architecture. [6]

OR

- Q6)** a) With neat diagram, explain in detail Evolved Packet Core architecture of LTE. [6]
b) Compare 3G, 4G and 5G mobile technology. [6]
c) Compare different WiFi protocols. [6]

- Q7)** a) Illustrate Weighted Round Robin Scheduling. [6]
b) Write short note on power control in wireless communication. [6]
c) Illustrate the use of Network coding for Content Distribution in a Multi-Hop Network. [5]

OR

- Q8)** a) What is Network Coding (NC)? Explain with example. [5]
b) Illustrate the use of power control in different functionalities in cellular network. [6]
c) With reference to Scheduler Design, explain following components in brief: [6]
i) Classifier
ii) Channel Quality
iii) Scheduler

