PB3837

[6262]-99
T.E. (E & Tc Engineering)
CELLULAR NETWORKS
(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, Q.7 or Q.8.*
2) *Neat diagrams must be drawn wherever necesary.*
3) *Figures to the right indicate full marks.*
4) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
5) *Assume suitable data, if necessary.*

Q1) a) Describe with neat diagram the significance of Cell Geometry in Cellular Networks. **[6]**

b) With neat diagram explain various components of Cellular Network Architecture. **[5]**

c) Write in brief, the Conception of cell splitting and Cell sectoring in Cellular Networks. **[6]**

OR

Q2) a) Explain in brief Frequency assignments and Frequency reuse channels in Cellular radio system design. **[6]**

b) Define roaming. With neat diagram explain significance of roaming in cellular systems with algorithms. **[5]**

c) Classify and explain with neat diagram the handover in cellular systems with Handoff algorithms. **[6]**

Q3) a) Write a brief note that includes a neat diagram of the wireless system's Tele-Traffic System model. **[6]**

b) Explain the significance of link budget analysis for wireless systems. **[6]**

c) Explain the term Blocking Probability and its expression to calculate the Blocking Probability. **[6]**

OR

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Q4) a) List and explain various impact does Teletraffic Theory possess on wireless system planning. **[6]**

b) Explain the significance of steady state analysis process in wireless system planning process. **[6]**

c) Explain in detail the link-budget expression for the required transmitted power. **[6]**

Q5) a) With diagram explain components of 5G Network Architecture. **[6]**

b) Describe the operation of wireless local area network with diagram. **[6]**

c) Explain in brief with diagram a LTE-A radio protocol Architecture. **[5]**

OR

Q6) a) Compare 3G and 4G mobile generation network. **[6]**

b) Explain the operation of infrastructure based and adhoc WLAN with neat diagram. **[6]**

c) With block diagram, explain GSM architecture. **[5]**

Q7) a) Explain one Scheduling algorithms for real-time traffic with diagram in mobile communication. **[6]**

b) With neat diagram, explain in brief different steps in the scheduler design for mobile communication. **[6]**

c) Explain with neat diagram, the operation of Network coding in mobile communication. **[6]**

OR

Q8) a) Explain Layered Analysis in mobile communication. **[6]**

b) Explain in brief following QoS parameters : - **[6]**

    i) Throughput

    ii) Latency

    iii) Packet Loss

c) Explain in brief following QoE parameters :- **[6]**

    i) Peak Signal to Noise Ratio

    ii) Video Quality Metric

    iii) Mean Opinion Score

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