

GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2020-2021
MOBILE COMMUNICATION
IT704D

TIME ALLOTTED: 3 HOURS

FULL MARKS: 70

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable***GROUP – A****(Multiple Choice Type Questions)**Answer any *ten* from the following, choosing the correct alternative of each question: **10×1=10**

| | Marks | CO No |
|---|-------|-------|
| 1. (i) Microwave is suitable for a) Point to point communication b) Omni direction communication c) Broadcast communication d) None of these | 1 | CO1 |
| (ii) Radio capacity may be increased in cellular concept by a) Increase in radio spectrum b) increasing the number of base stations & reusing the channels c) Both a & b d) None of the above | 1 | CO1 |
| (iii) The strategies acquired for channel assignment are a) Fixed b) Dynamic c) Regular d) Both a & b | 1 | CO2 |
| (iv) In cellular network concept which Multiple Access is used a) FDMA b) TDMA c) CDMA d) SDMA | 1 | CO2 |
| (v) Handoff effects in a) Call dropping b) Temporary disconnection c) Call termination d) May be all | 1 | CO2 |
| (vi) Slow start and fast retransmit is related to a) Data link layer b) Transport layer c) Network layer d) All of these. | 1 | CO3 |
| (vii) Mobile IP refers a) Mobility b) IP tunneling c) IP within IP d) All of these | 1 | CO3 |

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|--------|--|---|-----|
| (viii) | GPRS stands for a) Global Packet Radio Service b) Global Packet Radio System c) General Packet Radio System d) General Packet Radio Service. | 1 | CO1 |
| (ix) | Reducing the cell size to increase capacity is called as ----- a) Microcell b) Sectoring c) Division d) None of these | 1 | CO4 |
| (x) | If N is the no of cells in a cluster then frequency reuse factor of a cellular system is given by a) N b) 1/N c) \sqrt{N} d) N^2 | 1 | CO2 |
| (xi) | The cell having the same set of frequency channel as in the adjacent cluster is termed as a) Macro-cell b) Selective cell c) Co-channel cell d) Adjacent cell | 1 | CO4 |
| (xii) | The techniques by which a call is maintained while user is moving from one cell to another known as a) Transportation b) Hand off c) Mobility d) None of These | 1 | CO1 |

GROUP – B

(Short Answer Type Questions)

Answer any *three* from the following: **3×5=15**

- | | | Marks | CO No |
|----|---|--------------|--------------|
| 2. | (a) What is Mobile Communication.. | 3 | CO2 |
| | (b) Mention the usage of transmission medium in Mobile Communication. | 2 | CO2 |
| 3. | (a) Explain the term cell handoffs in context of mobility management. | 3 | CO1 |
| | (b) What are the differences between soft handoff and hard handoff? | 2 | CO1 |
| 4. | (a) Define MAC layer. | 2 | CO3 |
| | (b) What are the functions of MAC layer? | 3 | CO3 |
| 5. | Mention different types of computer networks. | 5 | CO2 |
| 6. | Discuss the GSM architecture with a diagram. | 5 | CO2 |

GROUP – C

(Long Answer Type Questions)

Answer any *three* from the following: **3×15=45**

- | | | Marks | CO No |
|----|---|--------------|--------------|
| 7. | (a) Prove that for hexagonal geometry the co-channel reuse ratio is given by $Q=\sqrt{3N}$, where $N=i^2+ij+j^2$. | 5 | CO4 |

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|-----|---|----|-----|
| (b) | Explain in details about Agent advertisement and Discovery during IP Packet delivery. | 5 | CO1 |
| (c) | What are the difficulties in using CSMA/CD in wireless LAN? What alternative method can be used? | 5 | CO2 |
| 8. | (a) Discuss three different mechanisms for improving cell capacity and coverage are in a cellular system. | 9 | CO4 |
| | (b) State the principles of Cellular Architecture. | 4 | CO4 |
| | (c) What is MAHO? | 2 | CO2 |
| 9. | (a) Explain the term MANET. | 5 | CO4 |
| | (b) What are the characteristics of MANET. | 5 | CO3 |
| | (c) What are the different types of MANET. | 5 | CO3 |
| 10. | (a) Draw the system architecture of GSM network and discuss VLR and HLA in this context. | 12 | CO2 |
| | (b) Distinguish between 3G and 4G cellular networks. | 3 | CO3 |
| 11. | Write short note on (any <i>three</i>) | | |
| | (a) GSM | 5 | CO2 |
| | (b) CDMA | 5 | CO2 |
| | (c) AMPS | 5 | CO1 |
| | (d) DSDV Protocol | 5 | CO2 |
| | (e) HiperLAN | 5 | CO1 |