

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech (EIE-N)/SEM-8/EC-802D/2010

2010

MOBILE COMMUNICATION

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)

1. Choose the correct alternatives for any ten of the following :

10 × 1 = 10

- i) The first generation mobile cellular system is
 - a) GSM
 - b) AMPS
 - c) IS-95
 - d) Pagers.
- ii) In the physical layer Bluetooth uses
 - a) FHSS
 - b) DSSS
 - c) DHSS
 - d) OFDM.
- iii) A single frame in GSM frame structure consists of
 - a) 10 time slots
 - b) 8 time slots
 - c) 7 time slots
 - d) 4 time slots.
- iv) IEEE 802.11 b has data transfer rate
 - a) 54 mbps
 - b) 11 mbps
 - c) 400 mbps
 - d) none of these.

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GROUP - B**(Short Answer Type Questions)**Answer any *three* of the following. $3 \times 5 = 15$

2. Draw the basic algorithm of CSMA/CD and explain.
3. Define hand-off & different types of hand-off. What is frequency reuse factor ?
4. What do you mean by spread spectrum modulation ?
5. The US AMPS system is allocated 50 MHz of spectrum in the 80 MHz range and provides 832 channels. 42 of those channels are control channels. Assume a base station transmits control information on channel 352 operating at 880.560 MHz. What is the transmission frequency of a subscriber unit transmitting on channel 352.
6. What is sub-satellite point ? What is the visibility condition of a satellite ?

GROUP - C**(Long Answer Type Questions)**Answer any *three* of the following. $3 \times 15 = 45$

7. a) Prove that for a hexagonal geometry, the co-channel reuse ratio is given by $Q = \sqrt{3N}$, where $N = i^2 + ij + j^2$.
b) Derive that $N = i^2 + ij + j^2$, where N is the number of cells in a cluster. 8 + 7
8. a) Draw a comparative study of GSM & CDMA and evaluate the better choice.
b) What are the major highlights and concept of a 3G network ?
c) What is WAP ? Explain the various useful aspects of WAP in mobile communication. 6 + 5 + 4

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9. a) Explain packet switching and circuit switching.
b) Why does 2.5 generation use both packet switching and circuit switching ?
c) Why are different coding mechanisms used in 2G and 2.5G ?
d) Why are more 3 APS not placed at the same location ?
e) What is 4G ? $3 + 3 + 3 + 3 + 3$
10. a) Draw a comparative study of GSM and CDMA. Evaluate the better choice.
b) Explain the concept of Okumura propagation model as applicable to the PCS.
c) With the help of block diagram, explain the concept of cordless telephone. $(4 + 2) + 5 + 4$
11. Write short notes on any three of the following : 3×5
- a) IR
 - b) Paging system
 - c) GPRS
 - d) AMPS
 - e) Bluetooth.
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