



Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech(IT)/SEM-8/IT-802D/2013

2013

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) IEEE 802.11 supports

- | | |
|-------------|------------------|
| a) Infrared | b) DSSS |
| c) FSS | d) all of these. |

ii) Bluetooth uses

- | | |
|-------------------|----------------------|
| a) 4 GHz ISM band | b) 2.5 GHz ISM band |
| c) 2GHz ISM band | d) 3.6 GHz ISM band. |

iii) In intra-MSC handover, the hand-off decision is taken at

- | | |
|------------|-------------|
| a) BTS new | b) BSC new |
| c) BTS old | d) BSC old. |



- iv) Which of the following is a signal parameter ?
 - a) Amplitude
 - b) Frequency
 - c) Phase
 - d) All of these.
- v) A single frame in GSM frame structure consists of
 - a) 8 time slots
 - b) 10 time slots
 - c) 12 time slots
 - d) 16 time slots.
- vi) Frequency Division Duplex technology is used in
 - a) HSCSD
 - b) W-CDMA
 - c) GPRS
 - d) EDGE.
- vii) A bluetooth frame needs μ s for hopping and control mechanism.
 - a) 625
 - b) 259
 - c) multiple of 259
 - d) 3.
- viii) The cell having the same number in the adjacent cluster using the same set of RF channels is termed as
 - a) macro-cell
 - b) selective cell
 - c) co-channel cell
 - d) adjacent cell.
- ix) IEEE 802.11 based network uses
 - a) 5.2 – 5.9 GHz
 - b) 2.4 – 2.5 GHz
 - c) 3.5 – 3.8 GHz
 - d) 4.5 – 4.8 GHz.
- x) Hard hand-off was observed till
 - a) 1st generation
 - b) 2nd generation
 - c) 3rd generation
 - d) none of these.
- xi) Modulation scheme used in GSM is
 - a) AM
 - b) GMSK
 - c) QPSK
 - d) FSK.
- xii) Which of the following IR-wLAN suffers from multipath dispersion ?
 - a) Point-to-point
 - b) Quasi-diffuse
 - c) Pure diffuse
 - d) None of these.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

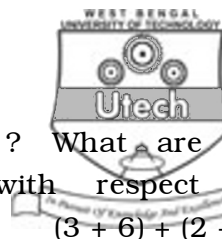
2. a) Describe the prioritization phase of HIPERLAN1.
b) What is handoff ? 4 + 1
3. Discuss the advantages and disadvantages of radio wave and IR transmission technology.
4. a) What are the fundamental differences between HTTP and WAP ?
b) What is the difference between soft handoff and hard handoff ? 3 + 2
5. a) What are the advantages and disadvantages of I-TCP ?
b) What is Micro-cell zone concept ? 3 + 2
6. a) How does frequency re-use take place in cellular system ?
b) What is snooping TCP ? 3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Explain the functionalities of Radio layer and L2CAP layer of Bluetooth. Also mention their placement in the Bluetooth architecture.
b) What is SCO ?
c) In what situations can collisions occur in IEEE 802.11, HIPERLAN2 and Bluetooth networks and why ?
d) What are the networks that can be formed with Bluetooth devices ? 8 + 2 + 2 + 3
8. a) What is the problem of hidden terminal ? How does IEEE 802.11 deal with it ? Describe in detail.



- b) What is Mobile Adhoc Network ? What are its advantages and disadvantages with respect to infrastructured networks ? $(3 + 6) + (2 + 4)$
9. a) What is the difference between a care-of-address and co-located care-of-address ?
- b) How does a reverse tunnel differ from a forward tunnel in mobile IP protocol ?
- c) Briefly describe GPRS technology. $3 + 4 + 8$
10. a) Describe the WAP architecture and protocol stack.
- b) Discuss congestion control mechanisms.
- c) Describe briefly the various dynamic location update schemes. $8 + 2 + 5$
11. Describe power management scheme in IEEE 802.11 infrastructured and ad-hoc networks with suitable examples and diagrams.
12. Write short notes on any *three* of the following : 3×5
- a) Destination Sequenced Distance Vector (DSDV) Routing protocol
- b) Security in Bluetooth Networks
- c) Security in WAP
- d) Direct Sequence Spread Spectrum Technique
- e) Code Division Multiple Access Technique
- f) WATM.
-