



**MAULANA ABUL KALAM AZAD UNIVERSITY OF
TECHNOLOGY, WEST BENGAL**

Paper Code : EC-701

PUID : 07075 (To be mentioned in the main answer script)

**WIRELESS COMMUNICATION AND
NETWORK**

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 : $10 \times 1 = 10$
- i) What is the maximum data rate for the 802.11 g standard ?
- a) 6 Mbps b) 11 Mbps
- c) 22 Mbps d) 54 Mbps.
- ii) The basic GSM is based on traffic channels.
- a) Connection-oriented.
- b) Connection-less
- c) Packet Switching
- d) Circuit Switching.

- iii) Fading of the received radio signals in a mobile communication environment occurs because of
 - a) multipath propagation
 - b) direct propagation
 - c) bi-path propagation
 - d) none of these.
- iv) The multiple access used by Digital European Cordless Telephone (DECT) is
 - a) CDMA
 - b) FDMA
 - c) TAMA
 - d) CDMA/FDMA.
- v) Interference on voice channel usually causes
 - a) missed calls
 - b) blocked calls
 - c) dropped calls
 - d) cross talk.
- vi) What is the type of modulation scheme used with AMPS ?
 - a) WCDMA
 - b) FDMA
 - c) TDMA
 - d) CDMA.
- vii) GPRS is a/an
 - a) Circuit switched cum packet oriented service for mobile users
 - b) Packet oriented service for mobile Users
 - c) Asynchronous packet oriented service for mobile users
 - d) Synchronous packet oriented service for mobile users.
- viii) The CDMA reverse channel employs the digital modulation technique of
 - a) BPSK
 - b) O-QPSK
 - c) QPSK
 - d) OFDM.

- ix) Each carrier of the IS-9 standard occupies a bandwidth of
 - a) 25 kHz
 - b) 200 kHz
 - c) 30 kHz
 - d) 1250 kHz.
- x) What is the speed of WLAN data service ?
 - a) 12 MHz
 - b) 13 MHz
 - c) 12 GHz
 - d) 7 Hz.
- xi) The collision avoidance technique is
 - a) CSMA/CA
 - b) CSMA/CD
 - c) ALOHA
 - d) none of these.
- xii) CDMA is applied in
 - a) IP layer
 - b) MCA layer
 - c) network layer
 - d) session layer.

GROUP - B

(Short Answer Type Questions)

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

2. What are the Frequency Hopping Spread Spectrum technique and Direct Sequence Spread Spectrum technique ?
3. What do you mean by cell sectoring ? Discuss its advantages and limitations.
4. What are Near and Far problems in CDMA ?
5. Discuss the Mobility management in wireless network.
6. Explain Back-off algorithm with proper flow chart.

GROUP – C

(Long Answer Type Questions)

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

7. a) Discuss different types of fading.
b) Describe two-ray propagation model. On what factors does the loss depend for this model?
c) Define the term EIRP. What is the path loss in dB for free space propagation model? $5 + 5 + (2 + 3)$
8. a) What do you mean by cell splitting? State its advantage and disadvantages.
b) What are fixed and dynamic channel assignment strategy?
c) What is hand-off? What are the methods for giving priority to hand-offs? $5 + 5 + (1 + 4)$
9. a) With neat diagram explain the hidden terminal and exposed terminal problem. How these problems can be solved?
b) Explain WLAN system architecture.
c) Describe IEEE802.11 logical architecture. $7 + 4 + 4$
10. a) With neat diagram explain the authentication procedure of GSM.
b) Explain GSM call set-up procedure.
c) Draw the GSM frame structure. $5 + 5 + 5$
11. Write short notes on any *three* of the following: 3×5
a) Umbrella cell approach
b) Forward and reverse link in CDMA based IS 95 system
c) UMTS
d) AMPS
e) GPRS network architecture.
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