

CS/B.Tech/CSE/Odd/Sem-7th/CS-704E/2015-16



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

CS-704E

MOBILE COMPUTING

Time Allotted: 3 Hours

Full Marks: 70

The questions are of equal value.

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable. All symbols are of usual significance.

GROUP A

(Multiple Choice Type Questions)

1. Answer all questions. 10×1 = 10

(i) Which of the following is/are the main part(s) of basic cellular system?

- (A) A mobile unit
- (B) A cell site
- (C) A mobile telephone switching office
- (D) All of these

(ii) In _____ frequency spectrum is divided into smaller spectra and is allocated to each user

- (A) TDMA
- (B) CDMA
- (C) FDMA
- (D) OFDMA

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(iii) Which of these cells are used for densely populated areas?

- (A) Macro cells
- (B) Micro cells
- (C) Selective cells
- (D) Umbrella cells

(iv) Cell A uses the same frequency as cell B. The Cell A is a _____ of Cell B.

- (A) Adjacent cell
- (B) Co channel cell
- (C) Macro cell
- (D) Selective cell

(v) The process of channel coding, encryption, multiplexing and modulation for Transmission and reception are to be carried out by

- (A) BTS
- (B) BSC
- (C) MSC
- (D) MS

(vi) The coverage and capacity of CDMA system is more than that of GSM system.

- (A) True
- (B) False
- (C) Equal
- (D) None of these

(vii) The core concept used in cellular technology is

- (A) TDM
- (B) Frequency reuse
- (C) Code reuse
- (D) None of these

(viii) The terminal is under observation from the network for the possible problems. Under which list will this belong in EIR?

- (A) White list
- (B) Grey list
- (C) Black list
- (D) None of these

(ix) Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?

- (A) CDMA
- (B) CSMA/CA
- (C) ALOHA
- (D) None of these

(x) What is the access point (AP) in wireless LAN?

- (A) Device that allows wireless devices to connect to a wired network
- (B) Wireless devices itself that allows wireless devices to connect to a wired network
- (C) Both (A) and (B)
- (D) None of these

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GROUP B
(Short Answer Type Questions)

- Answer any *three* questions. 3×5 = 15
2. Explain the system architecture of infrastructure-based wireless networks with diagrams. 5
 3. What do you mean by hand-off? Discuss how hard hand-off is different from soft hand-off. 3+2
 4. Describe the system architecture and protocol architecture of IEEE 802.11 with suitable diagram. 5
 5. What are the features proposed for 4G systems? Explain. 5
 6. What do you mean by ad-hoc piconet? Mention the different criteria of WPAN. 2+3

GROUP C
(Long Answer Type Questions)

- Answer any *three* questions. 3×15 = 45
7. (a) What is direct sequence spread spectrum technology? 3
 (b) Distinguish between collisions of PHY and MAC layer. 4
 (c) Explain how Handover takes place in GSM. What are the problems associated with Handover in GSM? 8
 8. (a) Discuss how digital communication is better than analog communication? 3
 (b) What are the main reasons for using cellular system? Describe the dynamic channel allocation in cellular system. 2+3
 (c) What are the limitations of GSM cell in terms of capacity for traditional GSM? How can the capacity be increased? 7

9. (a) Discuss the advantages and limitations of Bluetooth as a wireless standard. 5
 (b) Compare radio waves, microwaves and infrared waves, with respect to their data rates, transmission distance, interference and cost. 5
 (c) Explain clearly why cellular IP cannot be used in place of mobile IP. 5
10. (a) What do you mean by "Call Admission Control" in mobile communication? Discuss any two of the CAC schemes for mobile communication. 2+5
 (b) What is congestion problem? Briefly point out some features of TCP congestion control and congestion in mobile ad hoc network. 3+5
11. Write short notes on any *three* of the following: 3×5
 - (a) WAP Protocol Stack
 - (b) GRPS
 - (c) Hiper LAN
 - (d) WLAN
 - (e) MANET