

CS/B.Tech/CSE/odd/Sem-7th/CS-704E/2014-15

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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.

GROUP A
(Multiple Choice Type Questions)

1. Answer all questions.

10×1 = 10

(i) GSM operates at

- (A) 860-960 MHz (B) less than 500 MHz
(C) Greater than 500 MHz (D) none

(ii) Network signalling in GSM is

- (A) SS7 (B) SS5
(C) cipher (D) none

(iii) Which of the following is the main standard for Bluetooth?

- (A) IEEE802.15 (B) IEEE802.3
(C) IEEE802.11 (D) IEEE802.16

(iv) GPRS is

- (A) general packet radio service (B) global packet radio service
(C) general police radio service (D) none

(v) Which of the following is the problem in IPV4 addressing for physical mobility?

- (A) it has 32-bit address
(B) it does not provide QoS support
(C) its routing and forwarding require a fixed IP determined by a network
(D) it has security issues

(vi) WAP 2.0 runs at

- (A) 384 Kbps (B) 364 Kbps
(C) 54 Mbps (D) 11 Mbps

(vii) Which of the following is mobile/wireless simulator?

- (A) NS2 (B) NS3
(C) Qualnet (D) all of the above

(viii) WLL uses

- (A) specified bound (B) unspecified bound
(C) low pass filter (D) none

(ix) If N is the number of cells per cluster, then frequency reuse factor of the cellular system is

- (A) N (B) 1/N
(C) N² (D) none of the above

(x) Which one is used in WLAN?

- (A) access point (B) router
(C) both (A) and (B) (D) none of the above

GROUP B
(Short Answer Type Questions)

- Answer any *three* questions. 3×5 = 15
2. What do you mean by Mobile Communication? What are the advantages of Mobile Communication over PSTN? What is the difference between network protocol and network architecture? 1+2+2
 3. What is Handoff? Differentiate between hard and soft handoffs. What does GPRS stand for? 1+3+1
 4. What are the differences between Destination sequence distance vector and the Standard distance vector routing algorithms? What are the frequency bands of operation for CDMA? 4+1
 5. What are the difficulties in using CSMA/CD in wireless LANs? What alternative methods can be used? 2+3
 6. What do you mean by tunnelling and encapsulation in the context of Mobile IP? 5

GROUP C
(Long Answer Type Questions)

- Answer any *three* questions. 3×5 = 15
7. (a) What are the functions of Home agent and Foreign agent in Mobile IP? 4
(b) How does I-TCP differ from traditional TCP? Describe with suitable diagram. 5
(c) Briefly describe the congestion control, slow start and fast retransmit mechanism. 6
 8. (a) Discuss the three different mechanisms to improve the cell capacity and coverage area in cellular systems. 6
(b) What is MANET? 2
(c) What is Micro-cell zone concept? 3
(d) Briefly differentiate between GSM and CDMA technologies. 4

9. (a) Draw the system architecture of the GSM network and discuss VLR, HLR on that context.
(b) Why is the cell structure supposed to be a Hexagon in a mobile network?

10. (a) Define WLAN.
(b) Illustrate the system architecture of IEEE 802.11 WLAN.
(c) Explain with diagram the protocol architectures and manage of IEEE 802.11.

11. (a) Explain the concept of frequency reuse in cellular systems.
(b) What do you mean by co-channel interference and system capacity?
(c) Discuss three different mechanisms to improve the cell capacity and coverage area in a cellular system.