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**Question Paper Code : X10322**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2021

Sixth Semester

Computer Science and Engineering

CS 8601 – MOBILE COMPUTING

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

**(10×2=20 Marks)**

- Analyze the following scenarios in which mobile communication is involved and mobile communication is not involved.
  - A person from a cell phone accesses a stationary server in his office that is in a wired network.
  - A person from one PC transfers a file to another person who is also working in a PC using wired connection.
  - A call is made from a land line phone to a mobile phone.
  - Communication takes place between a pocket PC and a PDA.
- Spread spectrum is inherently secure than simple shift keying techniques. Justify this statement.
- A mobile service provider has been allotted a limited number of frequency bands. However he wants to accommodate more customers. What is the technique to be applied by him to achieve this ?
- Which one of the following is correct ?
  - GSM is a 2G and analog network
  - GSM is a 3G and digital network
  - GSM is a 4G and analog network
  - GSM is a 2G and digital network
- Mention the importance of DHCP in the context of mobile computing.
- Write short notes on VANETs.



7. What is the function of a WAP gateway ?
8. What are the possible reasons for the loss of packets in mobile networks ?
9. Differentiate native apps and web apps.
10. Mention the major protocols involved in mobile payment systems.

**PART – B**

**(5×13=65 Marks)**

11. a) i) Explain the various components of an FHSS based communication system. **(6)**  
ii) Assume that two senders A and B want to send the data. CDMA assigns 010011 as the key to A and 110101 as the key to B. A wants to send 1 and B wants to send 0. CDMA codes 0 as – 1 and 1 as + 1. Explain the steps involved in the process of sending and receiving. **(7)**  

(OR)
- b) i) Explain how the slots are reserved by the base station based on the demand received from the mobile nodes using PRMA. **(7)**  
ii) Assume that three stations A, B and C are deployed as follows. B is within the transmission range of A and C and A and C are not within the transmission range. Explain how collisions are avoided using MACA protocol. **(6)**
12. a) i) Explain the various components of radio subsystem of GSM networks . **(6)**  
ii) Discuss the bearer services of GSM networks. **(7)**  

(OR)
- b) i) Explain the GPRS architecture reference model with a neat diagram. **(7)**  
ii) Discuss the UTRA FDD mode with a neat diagram. **(6)**
13. a) i) Explain DSR protocol with a sample topology. **(7)**  
ii) Discuss the suitability of DSR in terms of density of nodes, total number of nodes pattern of communication and end to end delay. **(6)**  

(OR)
- b) i) Explain ZRP with a sample topology. **(7)**  
ii) Explain the reasons why a pure proactive or a pure reactive protocol is not suitable for certain scenarios with suitable examples. **(6)**
14. a) i) Discuss the limitations of traditional TCP in the context of mobile networks. **(7)**  
ii) Explain end to end semantics of the transport layer. Discuss how end to end semantics. **(6)**

(OR)



- b) i) Explain Wireless Datagram Protocol (WDP) of WAP stack. **(7)**  
ii) Write a WML Script that asks the user to enter his name and age. Write validation function(s) that ensure that name has only alphabets and age has only numeric. **(6)**
15. a) i) Explain the structure of Android OS. **(6)**  
ii) Explain the lifecycle of an Android app development. **(7)**
- (OR)
- b) i) Explain the structure of iOS. **(6)**  
ii) Explain the lifecycle of an iOS app development. **(7)**

PART – C

**(1×15=15 Marks)**

16. a) Assume that you are going to design and implement a cellular network for Uthiramerur Taluk which is full of small villages except few small towns. Discuss the ways in which you'll decide the number of cells, type of cells, handoff, frequency band allocation and call blocking. Draw a rough diagram that conveys your design. You have to implement a cellular network for T. Nagar in Chennai. Repeat all the activities what you had done for Uthiramerur network for T. Nagar network also. **(15)**
- (OR)
- b) An University decides to go for a campus wide network to provide the Internet connectivity using WiFi hotspots. Discuss the various factors to be considered like number of hotspots required, key locations in which the hotspots are to be installed, connecting hotspots to the Internet Service Provider of the university. Draw a sketch that conveys your design. **(15)**
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