

Allah University
Odd Semester Examination (Autumn Semester) 2023-24
(For 4th Year 7th Semester B.Tech CSE)

Paper Name: Professional Elective -III (Mobile Computing)
Paper Code: CSEUGPE16

Full Marks: 80
Time: 3 hours

Group A

Answer all the questions

(10X1=10)

1. Which of the following uses wireless as the mode of communication for transferring or exchanging data between various mobiles over a short-range?
a. Ad hoc computing b. Mobile computing c. Bluetooth technology d. None of the above.
2. Which of the following can be considered as the advantage of using frequency reuse?
a. The same spectrum can be allocated to the other networks
b. Only a limited spectrum is required
c. Increase capacity
d. All of the above
3. In which one of the following, the slow and fast hopping is used?
a. GSM b. GPRS c. FHSS d. None of the above
4. Mobile Computing allows transmission of data from one wireless-enabled device to another
a. Any device b. Wired device c. Wireless-enabled device d. one of the above
5. Which of the following is a fundamental principle of wireless communication?
☒ a. Electromagnetic waves b. Microwaves c. Both A and B d. None of the above
6. Which of the following statements is correct about the FHSS?
a. FHSS is a type of narrowband signal
b. It uses the 78 frequency in the 2.4 GHz
c. It is referred as Frequency Hopping Spread Spectrum
d. All of the above
7. Which of the following is required to transmit the digital information using a certain frequency by translating it into an analog signal?
a. Demodulation ~~b. Modulation~~ c. QPSK d. BSPK
8. In which of the following, the single-channel has the ability to carry all transmissions simultaneously?
a. CDMA b. TDMA c. FDMA d. None of the above
9. In which one of the following times is specifically divided into several time slots that are in the fixed patterns?
a. CDMA ☒ b. TDMA c. FDMA d. All of the above ,
10. The term _____ refers to transporting a mobile station from one base station to another base station.
a. Roamer b. Forward channel c. Handoff or hand over d. MIN

Group B

Answer any 5 questions

(5X6=30)

1. What is a signal? What are the different characteristics of signal? [3+3]
2. Explain non-persistent CSMA, persistent CSMA and p-persistent CSMA. [2x3]
3. Compare with diagram, infrastructure and adhoc networks. [3+3]
4. What are the parameters for controlling the waiting time of the medium?
5. State some advantages of using wireless LANs over wired LANs. What are the disadvantages of using wireless LANs? [3+3]
6. Explain the problem of hidden and exposed terminals. [3+3]

Group C

Answer any 4 questions

(4X10=40)

1. What are the benefits of reservation schemes? How are collisions avoided during data transmission? Why is the probability of collisions lower compared to classical Aloha? What are the disadvantages of reservation systems? [2+3+3+2]
2. Why are antennas needed? Describe the different types of antennas. Is a directional antenna useful for mobile phones? Why? How can the gain of an antenna be improved? [2+3+2+3]
3. Describe the process of DFWMAC-DCF with an example. What is the advantage of using RTS/CTS extension with DFWMAC-DCF? [7+3]
4. What are the basic requisites for applying FDMA? How does this factor increase complexity compared to TDMA systems? [6+4]
5. Explain the term interference in the space, time, frequency and code domain. What are the countermeasures in SDMA, TDMA, FDMA and CDMA systems? [5+5]

Backoff time:

log-periodic

IEEE

CTFS
Carrier Inter
frame space