MID TERM EXAMINATION [MAY, 2023]
EIGHTH SEMESTER [B.TECH]
MOBILE COMPUTING [ETIT-402]

Time: 1.5 Hrs. **Max. Marks: 30**

Note: Q. No. 1 is compulsory. Attempt any two more Questions from the rest.

Q.1. (a) Explain the shape of the cell in a cellular system with reason. (3)

Q.1. (b) Compare the features of 2G, 3G and 4G. (3)

Q.1. (c) What is frequency re-use. (2)

Q.1. (d) What changes done in GSM network to support GPRS services. (2)

Q.2. (a) Explain GSM operations with its architecture. (5)

Ans. Refer to Q.3 (a) End Term Examination 2017 (Pg. No. 16-2017).

Q.2. (b) What is handoff. What are its type. (5)

Ans. Refer to Q.1 (c) End Term Examination 2019 (Pg. No. 6-2019).

Q.3. (a) What are multiple access techniques. Explain in detail. (5)

Q.3. (b) Write a short note on (a) WAP (b) Zigbee

Ans. Refer to Q.1 (b) End Term Examination 2017 (Pg. No. 8-2017). & Refer to Q.4 (i) First Term Examination 2019 (Pg. No. 3-2019).

Q.4. (a) Explain WiMax. (5)

Ans. Refer to Q.4 (iii) First Term Examination 2019 (Pg. No. 4-2019).

Q.4. (b) Explain Bluetooth with its types. (5)

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Time: 3 Hrs. **Max. Marks: 75**

Note: Attempt five questions in all including Q. No. 1 which is compulsory. Select one question from each unit.

Q.1. Answer the following briefly.

Q.1. (a) Extending the functions of a foreign agent with a 'snooping' TCP proves to be advantages. Justify. (2.5)

Q.1. (b) What advantages does the use of IPv6 offer for mobility? (2.5)

Ans. Refer to Q.1 (b) Second Term M.P.

Q.1. (c) Explain RTS and CTS frames with respect to WLANs. (2.5)

Q.1. (d) Explain the concept of near & far terminals in wireless networks? (2.5)

Q.1. (e) List the significant advantages of HIPERLAN 2 networks. (2.5)

Q.1. (f) Draw the Three tier architecture of mobile computing. (2.5)

Ans. Refer to Q.2 First Term Examination 2018 (Pg. No. 4-2018).

Q.1. (g) Explain data hoarding and data dissemination with respect to mobile computing. (2.5)

Q.1. (h) Justify the importance of Routing in Ad-Hoc networks and give examples of routing protocols used in wireless networks. (2.5)

Q.1. (i) State the main differences between UDP and TCP. (2.5)

Q.1. (j) Explain the need for specialized MAC in mobile networks. (2.5)

UNIT - I

Q.2. (a) Justify: In mobile cellular networks the uplink frequencies are of lower range as compared to the downlink frequencies but in satellite communication systems the uplink frequencies are of higher frequency range as compared to downlink frequency range. Mention the Uplink and Downlink frequency range for GSM and CDMA systems. (4)

Q.2. (b) Draw neatly the WAP protocol stack. (2.5)

Ans. Refer to Q.1 (b) End Term Examination MTP.

Q.2. (c) A FDD Cellular telephone system has a total bandwidth of 33 MHz. Two 25 KHz simplex channels is are used to provide a full duplex voice and control channels, compute the number of channels available per cell if a system uses, (6)

(1) 4-cell reuse (2) 7-cell reuse (3) 12-cell reuse.

Determine an equitable distribution of control channels and voice channels in each cell for each of the three systems if control channels are allocated a total bandwidth of 1MHz.

Q.3. (a) In reference to file systems, discuss the problems and solutions regarding consistency in mobile networks. (6)

Q.3. (b) Explain the logical channels of GSM along with the classification chart and state where that channel is uplink channel or downlink channel. (6.5)

UNIT - II

Q.4. (a) In context with wireless systems, explain how multiple access with collision avoidance scheme solves the problem of hidden terminal. (6)

Q.4. (b) With help of a neat diagram explain the Major baseband states of a Bluetooth device? (6.5)

Q.5. (a) In context to MAC schemes, explain the polling scheme and the Inhibit sense multiple access scheme, with relevant diagrams? (6)

Q.5. (b) With help of a neat diagram show the formation of piconet and scatternet in bluetooth networks. Discuss the 6 main differences between Bluetooth technology and Zigbee technology. (6.5)

UNIT - III

Q.6. (a) Justify with an example that least interference routing proves to be an efficient method as compared to the routing methods based on number of hops. (6.5)

Q.6. (b) In reference to mobile IP networks explain-Tunneling, Encapsulation and Registration. (6)

Q.7. (a) How and why does I-TCP isolate problems on the wireless link? What are the main drawbacks of this solution? (6.5)

Q.7. (b) In mobile IP networks explain the triangular routing problem and what is the solution to this problem? (6)

UNIT IV

Q.8. Discuss the different Operating Systems in wireless devices. (12.5)

Q.9. How does caching improve access time and reduce bandwidth requirements? What are locations for a cache and their specific advantages? (12.5)