



ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION: JANUARY 2021
(Academic Session: 2020 – 21)

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| Name of the Program: | B. Tech | Semester: | VII |
| Paper Title: | Elective -III (Mobile Computing) | Paper Code: | EEC 44119 |
| Maximum Marks: | 40 | Time duration: | 3 Hrs |
| Total No of questions: | 09 | Total No of Pages: | 02 |
| (Any other information for the student may be mentioned here) | <ol style="list-style-type: none">1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.3. Assumptions made if any, should be stated clearly at the beginning of your answer. | | |

Answer all the Groups

Group A

Answer all the questions of the following

5 × 1 = 5

1.
 - a) Write down the two criteria to find the nearest co-channel neighbours of a particular cell.
 - b) What do you mean by Ubiquitous Computing?
 - c) In TDMA/FDD system, forward link at B_{TOT} is 25 MHz and radio channels of B_C is 200 KHz. If 8 speech channels supported in the system and no guard band assumed, then how many users simultaneously access the signals?
 - d) What is the full form of CHOP in context of Ad Hoc networks?
 - e) What are the limitations imposed by mobility in mobile environment?

GROUP –B

Answer any three of the following

3 × 5 = 15

2.
 - a) Why the shape of a cell is chosen to be a hexagon?
 - b) Discuss the influence of portability in computational models for mobile environment. **[1+4]**
3.
 - a) Describe the PDP context activation procedure in GPRS system.
 - b) What is the wireless broadband Wi-max technology? How is it different from wireless LAN technology? **[3+2]**
4.
 - a) Differentiate MANETS from VANETS using suitable comparison table.
 - b) What are the relative advantages and disadvantages of persistent and non-persistent CSMA? **[3+2]**
5.
 - a) Explain the frequency of operation as well as two topologies of Bluetooth.
 - b) What is the significance of L2CAP protocol in context of Bluetooth? **[3+2]**
6.
 - a) What are the various types of control channel for mobile communication?
 - b) Can CSMA/CD be used in cellular wireless networks, if not, why?
 - c) What do you mean by Umbrella Cells? **[2+2+1]**

GROUP –C

Answer *any two* of the following

2 × 10 = 20

7. a) What are the functions of BSS & NSS in Distribution System?
b) Prove that sectoring increases signal to co-channel interference ratio.
c) How does near-far effect influence CDMA system? What are the countermeasures available in CDMA systems? **[3+3+4]**
8. a) What is the difference between hard handoff and soft handoff? Justify the statement “The margin given by $\Delta = P_{r \text{ handoff}} - P_{r \text{ minimum usable}}$, cannot be too large or too small.”
b) In the AMPS system, the system bandwidth is 12.5 MHz, the channel spacing is 30 KHz and the edge guard spacing is 10 KHz. The number of channels allocated for control signaling is 21. Find, i) the number of channels available for message transmission, ii) the spectral efficiency in FDMA.
c) Mention the Uplink and Downlink frequencies allotted for GSM 900 frequency band. **[4+4+2]**
9. a) Explain Push based mechanism and Pull based mechanism for wireless channels in brief with suitable illustrations.
b) Explain GSM architecture with a neat diagram and explain the functions of VLR, HLR, AuC, and EIR. **[4+6]**
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