

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2125)

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B. Tech 7th Semester Examination

Wireless Communication and Mobile Computing (NS)

CS-414

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Candidates are required to attempt five questions in all selecting one question from each of the sections A, B, C and D of the question paper and all the subparts of the question in section E. Use of non-programmable calculator is allowed.

SECTION - A

1. With a neat diagram explain the functional architecture of the GSM system. (20)
2. How is an ad hoc network different from a cellular network? What are the pros and cons of having different-size cells for wireless networking? Why hexagonal cell shape is used in cellular communication? (20)

SECTION - B

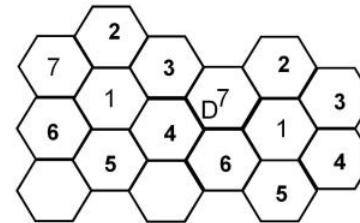
3. Explain packet flow in mobile IP, if two mobile nodes communicate and both are in foreign networks. What additional routes do packets take if reverse tunneling is required? (20)

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4. For the following cell pattern:



- (a) Find the reuse distance if the radius of each cell is 2 Km. (10)
- (b) If each channel is multiplexed among 8 users, how many calls can be simultaneously processed by each cell if only 10 channels are reserved for control, assuming a total bandwidth of 30 MHz available and each simplex channel of 25 kHz? (10)

SECTION - C

5. What are the implications of traditional TCP on mobility? Discuss strategies which are used to increase TCP's performance in wireless and mobile environments. (20)
6. Describe the system and protocol architecture of IEEE 802.11 with suitable example. (20)

SECTION - D

7. In context with cellular networks, explain following terms:
 - (a) GPRS Architecture.
 - (b) Location management with HLR-VLR. (2×10=20)
8. Give an overview of the WAP architecture and compare it with the typical internet architecture when using WWW. (20)

SECTION - E

9. Write short note on following:
- (a) Wireless Sensor Networks (WSNs) and Applications.
 - (b) Vehicular Adhoc Networks (VANETs) and Applications.
 - (c) Bluetooth technology.
 - (d) VOIP.
 - (e) Compare 2G and 3G technologies.
 - (f) What are mobile agents?
 - (g) Satellite communication.
 - (h) Handoffs in cellular networks.
 - (i) MANETS challenges.
 - (j) Difference between WSN and MANET. (10×2=20)