

3 Hours

[80 Marks]

- Note:** 1. Question Number 1 is compulsory.
2. Solve any **three** from remaining questions.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.

- (1) a. Consider a transmitter supporting 50 voice channels over an area of 150 kms. If this area is equally divided into 8 cells, each supported by lower power transmitters so that each cell supports 40% of the channels. Determine:
 - i) The coverage area of each cell
 - ii) Total area of voice channels available in cellular systems. **(10 marks)**
- b. Discuss the threats and challenges in wireless systems. Explain the different types of device security issues. **(10 marks)**
- (2) a. Define piconet and scatternet. Explain Bluetooth protocol stack structure. **(10 marks)**
b. Explain WIMAX system and compare the different 802.16 standards. **(10 marks)**
- (3) a. What is Handoff? Explain the types of handoff. **(10 marks)**
b. Explain the main factors of change in economics of wireless technology. **(10 marks)**
- (4) a. Write short note on Multiple Access Techniques **(05 marks)**
b. Explain Hidden and exposed terminal problem with solution. **(05 marks)**
c. Why is the concept of Spread Spectrum important? Briefly explain FHSS and DSSS concept. **(10 marks)**
- (5) a. Explain the GSM architecture with a neat diagram. **(10 marks)**
b. Neatly explain the WLL Architecture. Explain the two local loop techniques with diagram. **(10 marks)**
- (6) Write short notes on (any 2): **(20 marks)**
 - a. VPN
 - b. Wireless sensor networks
 - c. Zigbee Architecture
 - d. Mobile IP

(3 Hours)

Total Marks: 80

Note: i) Question no. 1 is compulsory
ii) Attempt any three from remaining
iii) Assume necessary data

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| 1. | (a) Discuss the usability engineering life cycle. | 10 |
| | (b) With help of an example explain the importance of graphics design and color while developing an application. | 10 |
| 2. | (a) Explain categories of users and individual user differences | 10 |
| | (b) Explain prototyping with example | 10 |
| 3. | (a) How user memory load can be minimized | 10 |
| | (b) Explain heuristic evaluation. | 10 |
| 4. | (a) Explain test tasks to be performed and stages of test . | 10 |
| | (b) How performance measurement is used for usability testing | 10 |
| 5. | (a) How usability assessment can be done without using testing | 10 |
| | (b) Discuss guidelines for internationalization. | 10 |
| 6. | Write short note on | 20 |
| | a) CAUSE Tool | |
| | b) Usability slogans | |
| | c) Usability Laboratories | |
| | d) Consistency | |
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