

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
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