

- N.B. :** (1) Question No. 1 is compulsory
 (2) Attempt any four from the remaining six questions.
 (3) Assumptions should be made whenever required and should be clearly stated.
 (4) Answers to sub questions should be answered together
 (5) Illustrate answers with diagrams wherever necessary.

1. (A) Explain how the registration and location update occurs in GSM when the mobile station moves from one LA to another considering all the scenarios. 10
 (B) What is spread spectrum and list the advantages of spreading the spectrum. Explain DSSS 10
2. (A) Discuss the WAP protocol architecture in detail. 8
 (B) What is piconet and scatternet? Discuss the different states of Bluetooth device. 7
3. (A) What is convolution code? What n, k, and K represents in (n,k,K) code. Draw an encoder and state diagram defined by $v_{n1} = u_{n-2} \oplus u_n$ and $v_{n2} = u_{n-2} \oplus u_{n-1}$ 8
 (B) Define free space loss. Suppose a transmitter produces 50W of power. 7
 (i) Express the transmit power in dB W.
 (ii) If the transmitter's power is applied to unity gain antenna with a 900 MHz carrier frequency, what is the received power at a free space distance of 100m?
4. (A) With a focus on security, what are the problems of WLANs? List down the weakness of WEP algorithm. What changes has been made in WPA and WPA2 to address the weakness? 8
 (B) List the entities of mobile IP and describe data transfer from a fixed to a mobile node and vice versa. Why and where is encapsulation needed? 7
5. (A) Explain Indirect TCP and Snooping TCP with its advantages and disadvantages. 8
 (B) Discuss the WiMAX architecture in detail. 7
6. (A) Explain the GSM system architecture in detail. 8
 (B) Explain the Bluetooth protocol stack in detail. 7
7. (A) Write Short Notes on any three :- 15
 (a) Frequency reuse
 (b) Fading
 (c) SyncML
 (d) ML and WML Script