



- Notes : 1. Assume suitable data wherever necessary.  
2. Illustrate your answer necessary with the help of neat sketches.

1. a) What propagation effects occur to the waves? Explain free space propagation in brief. 7  
b) Explain cellular system infrastructure, what is service area? 7

**OR**

2. a) Define following terms : 6  
i) Coherence Bandwidth. ii) Co-channel Interference.  
b) A station has 900 MHz transmitter and a vehicle is moving at speed of 50 KMPH. 8  
Compute the received frequencies, if vehicle is moving.  
i) Directly towards BTS, ii) Directly away from BTS.  
3. a) What is cell splitting? Explain effects of cell splitting. 6  
b) What is Registration? Explain steps used by MSS outside their own subscription area. 7

**OR**

4. a) Compare Hybrid versus flexible channel allocation. Which scheme is better and why? 6  
b) What parameters are considered during Handoff? Explain in brief Hard and Soft Handoff. 7  
5. a) Explain tunnel convergence problem with help of illustration diagram. 6  
b) What is bidirectional tunneling? Why do you need HA-FA in addition to the HLR-VLR pair? 7

**OR**

6. a) Explain major components of GSM infrastructure with help of block diagram. 7  
b) What is paging area? Explain various Handoff scenarios. 6  
7. a) What Design issues are considered in Sensor Networks? 6  
b) What is source initiated on demand routing? Explain Dynamic source routing in brief. 8

**OR**

8. a) Explain AODV (Adhoc On Demand Distance Vector) Routing protocol. 7

- b) Compare Hierarchical and flat Topologies for sensor Networks. 7
- 9. a) What is Hyper LAN? What are the goals of Hyper LAN Type 1 and Type 2 ? 7
- b) What are the challenges for UWB technologies? 6

**OR**

- 10. a) What are the advantages and disadvantages of WLAN compared to wired LAN? 7
- b) Explain the Bluetooth core protocols with Block Diagram. 6
- 11. a) Explain WML : XML Applications for wireless Handheld Devices. 7
- b) Explain in brief basic functions of SMART Antenna. 6

**OR**

- 12. a) How radio resources are managed efficiently for high-speed multimedia communications? 7
- b) What are intrusion detection models for MANET? 6

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