

BE11-R4: WIRELESS & MOBILE COMMUNICATION

NOTE:

1. Answer question 1 and any FOUR from questions 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours

Total Marks: 100

1.

- a) Explain piconet and scatternet w.r.t. Bluetooth technology.
- b) List out the advantages and disadvantages of Infrared and Radio wave communication.
- c) Compare Home Location Register & Visitor Location Register.
- d) Compare Direct sequence spread spectrum (DSSS) technology with frequency hopping spread spectrum (FHSS) technology w.r.t. Wireless LAN.
- e) Explain Following Terms:
 - i) Temporary Mobile Subscriber Identity (TMSI)
 - ii) Mobile Station Roaming Number (MSRN)
- f) List out the advantages of cellular systems with small cells.
- g) Explain Hard and Soft Handover w.r.t. UMTS.

(7x4)

2.

- a) Explain CSMA/CA and RTS/CTS.
- b) The frequency reuse concept led to the development of cellular technology. Explain the essential characteristics of this reuse of frequency w.r.t. GSM.
- c) Explain GPRS protocol stack.

(6+6+6)

3.

- a) Three algorithms have been specified to provide security services in GSM. Algorithm A3 is used for authentication, A5 for encryption, and A8 for the generation of a cipher key. Explain these security algorithms used in GSM.
- b) Explain WLMAN architecture with the help of a diagram.
- c) Explain UMTS system architecture.

(6+6+6)

4.

- a) Draw GPRS Architecture Reference Model and explain GPRS entities which are not the part of GSM architecture.
- b) Explain three different low power states which can be of Bluetooth device to save battery power.
- c) List out the advantages and disadvantages of WLAN and explain any two from each.

(6+6+6)

5.

- a) What is the difference between GSM and GPRS? Explain the Radio Subsystem of GSM.
- b) Explain the architecture of WLL with the help of a diagram.
- c) Write short note on Palm OS.

(6+6+6)

6.

- a) Explain pure ALOHA and slotted ALOHA techniques.
- b) Explain four possible handover scenarios in GSM.
- c) Compare Circuit Switched Data Services and Packet Switched Data Services on Cellular Networks.

(6+6+6)

7.

- a) Compare TDMA, FDMA, CDMA.
- b) Recall the problem of hidden and exposed terminal. What happens in the case of such terminals if Aloha, slotted Aloha, reservation Aloha or MACA is used?

(9+9)