## 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) Discuss personal communication system.

b) Write Short note on Multiple Access Technologies.

c) Explain pure ALOHA and slotted ALOHA.

d) Define Switching. How connectionless switching is different from connection oriented switching?

e) Discuss GPRS and its goals.

f) Define hidden terminal problem. What is the solution of the problem?

g) Explain different methods to reduce the co-channel interferences.

**(7x4)**

**2.**

a) Discuss pros and cons of TDMA, CDMA and FDMA.

b) Define speech coding. Discuss its components and its needs in data communication? Also, give examples of speech coding.

**(9+9)**

**3.**

a) What is GSM? Explain in detail the GSM architecture and its components.

b) Write short notes on:

i) IS-136

ii) IS-95

**(10+8)**

**4.**

a) What is Universal Mobile Telecommunications System (UMTS)? List and explain the characteristics of service classes defined in UMTS specifications.

b) What is WiMAX? Give reasons, why WiMAX is preferred?

**(12+6)**

**5.**

a) What is Personal Area Networks (PANs). Is Bluetooth a PAN? If yes, Discuss Bluetooth's protocol stack layered architecture.

b) Why there is need of operating system for mobiles? Discuss the features of two important operating system used for mobile devices.

**(9+9)**

**6.**

a) What is Wireless Local Loop (WLL)? Discuss the WLL architecture and frequencies used or standardized for WLL.

b) What is Quality of Service? Discuss QoS-based application requirements in terms of bandwidth, delay and losses for different categories such as data, real-time traffic, non-real-time traffic, games, and network services in 3G networks.

**(9+9)**

**7.**

a) List the characteristics of wireless communications systems which make it attractive for users. Briefly explain the topologies used to set up a wireless network. Also, discuss the issues of wireless networks.

b) Explain the different MTSO interconnections to wireline networks and cell-sites. List the advantages of MTSO. Why is it essential for the MTSO to control the transmitted power level at both the cell-site and the mobile subscribers?

c) Differentiate between Palm OS and Symbian OS. Write salient features of embedded Java.

**(6+6+6)**