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) Compare Ad-hoc Vs Infrastructure mode of WLAN.
b) Compare 1G, 2G, 3G, 4G, 4.5G technologies.
c) Draw and explain 802.16 architecture.
d) What is multipath and fading? Explain the effect of fading and multipath propagation in mobile communication.
e) Compare ALOHA and slotted ALOHA techniques.
f) Explain the various limitations of GPRS.
g) Differentiate between hidden node problem and Exposed node problem in wireless networking? How can it be solved?

(7x4)

2.
a) Explain Hand off management in mobile data communication.
b) Differentiate LAN, MAN, WAN.
c) Which are the physical factors influence small-scale fading in the radio propagation Channel?

(6+6+6)

3.
a) Draw GSM Architecture from technology point of view and explain GSM entities.
b) Compare Infrared and Radio wave communication.
c) What is Wireless Local Loop (WLL)? Draw and explain architecture of Wireless Local Loop (WLL) technology.

(6+6+6)

4.
a) What are the differences between Wired and Wireless Network?
b) Which are the security algorithms used in GSM for authentication and data encryption?
c) Write short note on Bluetooth Protocol Stack & explain four basic layers according to their functions.

(6+6+6)

5.
a) What is the difference between GSM and GPRS? Explain the network elements in GPRS that are different or enhanced from GSM?
b) The main aim in the cellular system design is to be able to increase the capacity of the channel. There are several different ways to allow access to the channel. These include FDMA, TDMA and CDMA. Explain each method with their features.
c) IS-95 is based on Code Division Multiple Access (CDMA) for the air interface. Explain IS-95 Digital Cellular System.

(6+6+6)

6.

a) Explain Following Terms:
- International Mobile Subscriber Identity(IMSI)
- Mobile Subscriber ISDN Number(MSISDN)
- Mobile Station Roaming Number (MSRN)

b) Draw and explain Personal Communication Systems (PCS) Architecture.

c) Describe the Symbian OS architecture. What are the functions of different layers in this architecture?

(6+6+6)

7.

a) Explain general model of spread spectrum system and compare Direct sequence spread spectrum technology with frequency hopping spread spectrum technology.

b) Explain various QoS techniques used in 3G Network.

(9+9)