

## BE11-R4: WIRELESS AND MOBILE COMMUNICATIONS

### 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) Write any four key characteristics of Symbian OS?
  - b) Compare FDMA with TDMA.
  - c) Explain the frame structure of GSM.
  - d) Draw a diagram depicting a WLAN. Explain the functions of its components.
  - e) What are the differences between Circuit Switched and Packet Switched data services on Cellular networks?
  - f) What are the differences between W-CDMA and CDMA2000 standards?
  - g) What are the differences between WLL and Bluetooth?

**(7x4)**
  
2.
  - a) Show that the frequency reuse factor for a cellular system is given by  $k/s$  where 'k' is the average number of channels per cell and 's' is the total number of channels available to the cellular service provider.
  - b) Explain the free space propagation model. Also, explain the advantages and disadvantages of the two-ray ground reflection model in the analysis of path loss.

**(9+9)**
  
3.
  - a) What hand off techniques are used by GSM and CDMA? How do they affect the services offered by respective operators?
  - b) Explain the forward link structure in IS-95 standard.

**(10+8)**
  
4.
  - a) Explain the Direct Sequence and Frequency Hopping Spread Spectrum Technologies. What are the differences between them?
  - b) How does Adhoc WLAN differ from Infrastructure LAN?

**(10+8)**
  
5.
  - a) Explain CT2 standard for Cordless Telephones.
  - b) Explain the architecture of DECT with a diagram.

**(8+10)**
  
6.
  - a) What are the development tools supported by J2ME?
  - b) Compare Palm OS with Symbian OS.
  - c) Explain the architecture of WLL with the help of a diagram.

**(6+6+6)**
  
7.
  - a) Explain the WiMax network architecture with the help of a diagram.
  - b) Explain the security related aspects of SMS.

**(10+8)**