53 (EC 713) WRSY

2019

WIRELESS SYSTEM

Paper : EC 713

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any five*** *questions.*

1. *(a)* Explain TDMA and FDMA systems. Cite their relative advantages, disadvantages and respective application areas. 10

   (b) Find out expressions for efficiency and no. of channels for TDMA system. 10

2. *(a)* Write about Packet radio access techniques. Find out maximum efficiency for pure ALOHA and slotted ALOHA systems. 15

Contd.

(b) The parameters for an IS-95 system are– total available bandwidth = 1.25 *MHz*, bit rate = 9600 *bps*, SIR_{bit} = 10*dB*, no. of sectors = 5 and V_f = 3/8. Find out the no. of users supported, avoiding interference and noise. 5

3. (a) Describe various Wireless Data Services. 12

(b) Cite the channel characteristics of CDPD, ARDIS and RMD systems. 8

4. (a) Describe Bluetooth Protocol Stack. 10

(b) What are the security requirements of Wi-Fi networks ? Explain. 10

5. (a) Write about Wi-Fi and WiMAX systems. What are their major differences ? 12

(b) Explain the Bluetooth packet format. 8

6. (a) Explain the two schemes for Spread Spectrum Multiple-Access. 10

(b) How can the capacity of DS-CDMA system be increased ? 6

(c) Find out the total no. slots for a GSM system haring 25*MHz* forward link. Per channel bandwidth is 250*kHz* and 8 speech channels are supported per radio channel. No guard band is assumed. 4

7. (a) List and briefly define IEEE802.11 services. 8

(b) Explain pulse shaping and windowing to OFDM systems. 12