

Total number of printed pages-3

53 (EC 713) WRSY

2017

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) Derive the expression of Multiple Access Interference and Signal to Interference ratio in a typical single carrier CDMA system. 15
- (b) Derive the expression of a TDMA frame structure. 5
2. (a) What are the benefits of OFDM, explain briefly ? 5
- (b) Explain OFDM with its matrix representation. 15

Contd.

3. (a) What are the different packet radio protocols ? Find the probability of success and throughput for slotted ALOHA and pure ALOHA. 4+8

(b) In a CSMA based system the equation of throughput is as follows : 8

$$S = \frac{G \cdot e^{-aG}}{G(1 + 2a) + e^{-aG}}$$

The propagation delay $a = 1 \mu \text{sec}$. G is the offered load traffic. For which value of G , throughput will be maximum ? Find the maximum value of throughput.

4. (a) Draw the protocol suite of X.25 network and describe functionalities of each layer. 10

(b) What do you mean by signalling in networking ? Explain with functional block diagram, the working of SS7 signalling system. 3+7

5. (a) What are the challenges in mobile-IP based networking ? 5

(b) How mobile IP management is done in various steps, explain briefly ? 9

- (c) How WAP is interconnected with IP based networking system ? 6
6. (a) What are the benefits of ATM ? Discuss ATM cell format and describe different Headers. 3+7
- (b) What are Virtual Path and Virtual Circuit ? Explain how ATM packets are transferred from one node to other in an ATM network. 2+2+6
7. Write short notes on : **(any two)** 10×2
- (i) CDPD
- (ii) ISDN
- (iii) Bluetooth
- (iv) Wireless broadband.
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