

**333749(22)**

**B. E. (Seventh Semester) Examination,**

**Nov.-Dec. 2021**

**(New Scheme)**

**(IT Engg. Branch)**

**WIRELESS NETWORKS**

***Time Allowed : Three hours***

***Maximum Marks : 80***

***Minimum Pass Marks : 28***

***Note : Attempt all questions. Part (a) from each question is compulsory. Attempt any two parts from part (b), (c) and (d) of each questions.***

***Part (a) is of 2 marks and (b), (c), & (d) are of 7 marks each***

**Unit-I**

1. (a) What are the different types of wireless communication networks.

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- (b) Explain wireless communications standards.
- (c) Explain linear time-variant channel model.
- (d) Describe large-scale path loss and shadowing.

### Unit-II

2. (a) Define Digital Modulation.
- (b) Explain QPSK modulation scheme with the help of block diagram of QPSK Transmitter and receiver.
- (c) What do you understand by power spectral density and show how power spectral density is used in characterizing modulation scheme.
- (d) Explain OFDM modulation scheme?

### Unit-III

3. (a) Define cellular communication.
- (b) Consider a cellular system in which there are a total of 1001 radio channels available for handling traffic. Suppose the area of cell is  $6 \text{ km}^2$  and the area of the entire system is  $2100 \text{ km}^2$ . Calculate the following :

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- (i) System capacity if cluster size is 7.
  - (ii) How many times would the cluster of size 4 have to be replicated in order to approximately cover the entire cellular area?
  - (iii) System capacity if cluster size is 4.
- (c) Explain with the help of example. How cell splitting increases the capacity of cellular system?
- (d) Explain co-channel and Adjacent channel interference in cellular communication?

### Unit-IV

4. (a) What do you understand by conflict free multiple access?
- (b) A pure ALOHA network transmit 200 bit frame on a shared channel of 200 kbps. What is the throughput if all the station produces 1000 frames per second also derive the expression for throughput of pure ALOHA?
- (c) Explain FDMA?

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(d) Explain location management for Cellular Network.

### Unit-V

5. (a) Define Wireless Internetworking?

(b) Explain operation of mobile IP?

(c) Explain WAP?

(d) Explain mobile Ad-hoc networks?

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