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B.TECH.
(SEM VII) THEORY EXAMINATION 2022-23
WIRELESS AND MOBILE COMMUNICATION

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief. 2x10 = 20

- (a) Draw general model of wireless communication system.
- (b) Illustrate the condition for zero ISI.
- (c) Discuss Selection Diversity.
- (d) Write pdf for Rician fading channel.
- (e) Write down the efficiency of Slotted ALOHA and Pure ALOHA.
- (f) Discuss Pooling.
- (g) Illustrate LTE.
- (h) Discuss GPRS.
- (i) Explain Wireless Ad-hoc Network.
- (j) Discuss Li-Fi communication.

SECTION B

2. Attempt any three of the following: 10x3 = 30

- (a) Illustrate Nakagami Fading Channel. Write and draw its pdf and explain all the parameters.
- (b) Explain Direct Sequence Spread Spectrum with the help of block diagram of transmitter and receiver.
- (c) Discuss Transversal Filters and its working using its block diagram. How is its response generated?
- (d) Illustrate Mobile satellite communication in detail. Also explain main segments of Mobile Satellite communication.
- (e) Discuss Bluetooth in detail which includes its architecture, specifications, and applications.

SECTION C

3. Attempt any one part of the following: 10x1 = 10

- (a) Explain different strategies used to increase the capacity of a wireless communication systems.
- (b) Describe different Hand-off strategies based on various parameters/implementation techniques. Discuss Ping-Pong.

4. Attempt any one part of the following: 10 x1 = 10

- (a) Explain different Diversity combining techniques. What are the advantages of Diversity Techniques?
- (b) Describe different types of Vocoders and their working with the help of neat and clean block diagram.

- 5. Attempt any *one* part of the following: **10x1 = 10****
- (a) Why is Equalization required? Discuss Decision Feedback Equalizers in detail.
 - (b) Explain RAKE receiver. Describe its working with explanation of each stage. What is the main advantage of a RAKE receiver?
- 6. Attempt any *one* part of the following: **10x1 = 10****
- (a) Describe IMT 2000 in detail with complete specifications and features.
 - (b) Discuss Wireless Local Loop. How it operates?
- 7. Attempt any *one* part of the following: **10x1 = 10****
- (a) Illustrate Wi-Max standard. What are main challenges present in of Wi-Max.
 - (b) Write short notes on Next Generation networks and its services. What are the fundamental characteristics for defining NGN

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