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Question Paper Code : 50499

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023

Sixth Semester

Electronics and Communication Engineering

EC 8652 – WIRELESS COMMUNICATION

(Common to: Computer and Communication Engineering/ Electronics and Telecommunication Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Fading.
2. What is Friis free space propagation model?
3. Define frequency reuse.
4. What is the need for multiple access techniques in wireless communication?
5. State the purpose of Cyclic Prefix in OFDM.
6. State the difference between QPSK and OQPSK.
7. What is the error performance degradation in communication system?
8. Define equalization in wireless communication.
9. What is the difference between beam forming and pre – coding?
10. Provide the detail of the role played by channel state information.

PART B — (5 × 13 = 65 marks)

11. (a) Derive two ray ground path loss model and compare its performance with free space model.

Or

- (b) Discuss your understanding on types of fading in the perspective of Doppler spread and coherence time.

12. (a) Compare and contrast various multiple access technique used in wireless communication.

Or

- (b) Derive the interference experienced by a cell edge user in the cellular architecture.

13. (a) Explain the working mechanism of OFDM with necessary implementation structure.

Or

- (b) Discuss the working mechanism of GMSK. Compare its performance with MSK.

14. (a) Derive any one of the diversity combining technique and Compare Macro with Micro diversity. (10+3)

Or

- (b) Explain with necessary mathematical model, the working mechanism of adaptive Equalizer.

15. (a) Describe MIMO system with necessary mathematical model.

Or

- (b) Detail the mechanism involved in determining the capacity of a fading channel with the aid of channel state information.

PART C — (1 × 15 = 15 marks)

16. (a) With suitable real time scenario, explain Hand off mechanism involved in cellular architecture.

Or

- (b) Under the Communication Engineering domain, Elucidate the interlinking between
- (i) modulation and coding scheme, (5)
 - (ii) multiple access scheme, and (5)
 - (iii) channel models that influence the performance of a cellular subscriber. (5)