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Reg. No. :



**Question Paper Code : 20430**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Fifth/Eighth Semester

Electronics and Communication Engineering

EC 6801 — WIRELESS COMMUNICATION

(Common to Robotics and Automation Engineering and Information Technology)

(Regulations 2013)

(Also common to PTEC 6801 – Wireless Communication for B.E. (Part-Time) – Sixth Semester – Electronics and Communication Engineering – Regulations 2014)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is fast fading?
2. Define Coherence time.
3. List the features of Cellular concept.
4. How is frequency reuse distance measured in cellular system?
5. Define PAPR. Is it high or low in OFDM?
6. State the advantages of GMSK.
7. Distinguish linear and non linear equalization.
8. What is Macro-diversity?
9. What is meant by spatial multiplexing and spatial diversity?
10. What is Channel State Information? How is it obtained?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Explain the various path loss models for large scale fading. (7)  
(ii) What is frequency selective fading? Explain. (6)

Or

- (b) Describe small scale fading and derive expressions for parameters of mobile multipath channels.
12. (a) (i) How is Hand-off in a cellular system implemented. Explain the different types of Hand-offs. (6)  
(ii) How can capacity of a cellular communication system be improved? Explain any two capacity expansion techniques. (7)

Or

- (b) (i) Compare and contrast TDMA and CDMA. (6)  
(ii) Discuss the impact of interference in a cellular system and system capacity. (7)
13. (a) With neat block diagram, explain the OFDM transmitter and receiver. List out its advantages and disadvantages. (13)

Or

- (b) (i) Explain the MSK system and its importance in a wireless communication system. (7)  
(ii) Why is O-QPSK preferred in wireless communication system? Justify. (6)
14. (a) (i) What is Equalization? Why is the equalization in a wireless system required to be Adaptive? (6)  
(ii) Explain the RAKE receiver with related sketch. (7)

Or

- (b) (i) Describe any two diversity combining techniques stating their respective merits. (7)  
(ii) What is Zero Forcing Equalizer Algorithm? Explain. (6)

15. (a) (i) Derive and explain the Capacity of non-fading channels with related sketches. (6)  
(ii) Explain Beam forming with neat diagrams. (7)

Or

- (b) (i) Describe Transmitter diversity and Receiver diversity. (7)  
(ii) Explain a MIMO system and explain its role in improving a wireless communication system. (6)

PART C — (1 × 15 = 15 marks)

16. (a) Explain the principle of an  $\frac{\pi}{4}$ -DQPSK scheme and compare it with traditional QPSK scheme. (10 + 5)

Or

- (b) With neat diagrams, explain and analyze linear equalization procedure. (5 + 5 + 5)