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GIET UNIVERSITY, GUNUPUR – 765022
 Ph.D. (Second Semester) Examinations, April – 2024
PPEEC2021 – Advanced Communication Systems
 (ECE)

Time: 3 hrs

Maximum: 70 Marks

The figures in the right-hand margin indicate marks.

Answer ANY FIVE Questions**(14 x 5 = 70 Marks)**

	Marks
1.a. Explain the Gram-Schmidt orthogonalization process and its significance in signal processing within communication systems.	8
b. Define analog and digital communication systems. Highlight the key differences between them and provide examples of each.	6
2.a. Explain memory modulation schemes in digital communication. How do these schemes overcome the limitations of memoryless modulation?	7
b. Define digital transmission and transmission impairments. Discuss common types of impairments and their effects on digital communication systems.	7
3.a. Discuss the role of link management protocols in telecommunication networks. How do these protocols ensure efficient data transmission?	8
b. Explain the basic principles of optical transport networks. What are the key components and protocols involved in their operation?	6
4.a. Explain the concept of multiple access techniques in satellite communication. Compare and contrast FDMA, TDMA, and CDMA.	8
b. Explore the role of VSAT (Very Small Aperture Terminal) in satellite communication. What are the advantages and applications of VSAT systems?	6
5.a. Provide an overview of GSM, GPRS CDMA technologies in mobile communication. What are the key features and differences between these technologies?	8
b. Explain the switching techniques employed in mobile telephone service. How do these techniques facilitate call routing and management?	6
6.a. Explain about CDMA technologies with suitable diagram. Give the advantages of CDMA over TDMA.	6
b. What do you mean by QPSK? Draw and explain about the working principle of QPSK modulator and demodulator.	8
7.a. What do you mean by fading? How it effects the signal? Explain about the different fading techniques.	7
b. Explain about the need of attitude & orbit control system (AOCS) in satellite communication in details.	7

- 8.a. Describe the concepts of bandpass and lowpass signal representation. How are these representations used in communication systems? 8
- b. List out the solutions proposed by industry experts for enhancing telecommunication infrastructure. How do these solutions address existing challenges in the field? 6

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