

Code: 20EC6502

III B.Tech - I Semester – Regular Examinations - DECEMBER 2022

**ADVANCED DIGITAL MODULATION AND CODING
TECHNIQUES
(HONORS in ELECTRONICS & COMMUNICATION
ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Explain the Generation and Demodulation of Phase Shift Keying Process.	L2	CO1	7 M
	b)	What is Continuous Phase Modulation and discuss Minimum Shift Keying techniques.	L2	CO1	7 M
OR					
2	a)	Explain the need of Digital Modulation & Discuss advantages and disadvantages of Digital Communication.	L2	CO1	7 M
	b)	Examine the Generation and Demodulation of Frequency Shift Keying Process.	L4	CO1	7 M
UNIT-II					
3	a)	Distinguish between Parallel and Serial Concatenations.	L4	CO2	7 M

	b)	Discuss in detail about Concatenated Convolution codes.	L2	CO2	7 M
OR					
4	a)	Demonstrate the procedure of Turbo decoding.	L3	CO2	7 M
	b)	Examine the iterative decoding technique of product codes with example.	L4	CO2	7 M
UNIT-III					
5	a)	Explain the importance of LDPC codes in 5G technology.	L2	CO4	7 M
	b)	Discuss log-likelihood ratio Decoding procedure in LDPC codes.	L2	CO4	7 M
OR					
6	a)	Explain SISO decoders for repetition.	L2	CO4	7 M
	b)	Discuss the Encoding procedure of LDPC codes.	L2	CO4	7 M
UNIT-IV					
7	a)	Discuss in detail about Iterative APP Pre-processing and Per-layer Decoding.	L2	CO3	7 M
	b)	Compare Digital Modulation Schemes.	L4	CO3	7 M
OR					
8	a)	Explain in detail about Alamouti's scheme for more than two antennas.	L2	CO3	7 M
	b)	Explain the procedure to generate Time Block codes with an example.	L2	CO3	7 M

UNIT-V

9	a)	Explain the following polar codes with example: i) Generator Matrix ii) Binary tree.	L2	CO4	7 M
	b)	Discuss the procedure of Successive cancellation decoder for polar codes.	L2	CO4	7 M

OR

10		Explain the encoding procedure of frozen bits and information bits in polar codes.	L2	CO4	14 M
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