

Code: 20EC6502

III B.Tech - I Semester - Regular Examinations - NOVEMBER 2023

**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 Modulation and Demodulation of Frequency shift keying (FSK).	L2	CO1	7 M
	b)	Outline the Quadrature Amplitude Modulation with neat sketch.	L4	CO1	7 M
OR					
2	a)	Explain Minimum Shift Keying (MSK) Technique.	L2	CO1	7 M
	b)	Discuss the Operation of Phase Shift Keying (PSK) Modulation and Demodulation.	L2	CO1	7 M
UNIT-II					
3	a)	Explain about iterative detection decoding of Turbo codes.	L4	CO2	7 M

	b)	Discuss various concatenations in Turbo Codes	L4	CO2	7 M
OR					
4	a)	Explain the generation of convolution codes.	L4	CO2	7 M
	b)	Outline the UMTS Turbo Codes with an example.	L4	CO2	7 M
UNIT-III					
5	a)	Explain how LDPC codes are used in 5G.	L3	CO4	7 M
	b)	Explain in detail about encoding procedure for LDPC Codes.	L3	CO4	7 M
OR					
6	a)	Demonstrate the likelihood ratio decoding procedure.	L3	CO4	7 M
	b)	Explain about SISO decoders in detail.	L4	CO4	7 M
UNIT-IV					
7	a)	Describe about Alamouti's Schemes.	L2	CO3	7 M
	b)	Explain about Spatial Multiplexing.	L2	CO3	7 M
OR					
8	a)	Explain about APP Pre-processing and Pre-layer decoding in detail.	L4	CO3	7 M
	b)	Outline various Digital Modulation Schemes.	L4	CO3	7 M
UNIT-V					
9		Explain how frozen and information bits are utilized in encoding procedure with an example.	L4	CO4	14 M

OR

10	a)	Explain Successive Cancellation decoder.	L2	CO4	7 M
	b)	Explain how generation matrix is used in polar codes.	L2	CO4	7 M