R18

Code No: 155BG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, July/August - 2023
ERROR CORRECTING CODES
(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A
(25 Marks)

1.a)	Define the entropy.	[2]
b)	Give the applications of block codes.	[3]
c)	What is the cyclic code?	[2]
d)	What are the advantages of cyclic code?	[3]
e)	What is feedback decoding?	[2]
f)	Give the applications of the Viterbi algorithm.	[3]
g)	What are LDPC codes?	[2]
h)	What are the advantages of belief propagation?	[3]
i)	What is spatial multiplexing?	[2]
j)	What is the purpose of Original BLAST detection?	[3]

PART – B
(50 Marks)

2. Explain with an example how an error can be detected from the syndrome matrix. [10]

OR

3. Discuss the hamming code with an example. [10]

4. Discuss the important algebraic properties of the cyclic codes. [10]

OR

5. Draw and explain the decoder for a cyclic hamming code. [10]

6. Explain the distance properties of convolutional codes. [10]

OR

7. Discuss the stack algorithm with example. [10]

8. What are concatenated convolutional codes? Explain the parallel concatenation method. [10]

OR

9. Discuss the Turbo decoding algorithm for UMTS Turbo code. [10]

10. Explain alamouti's scheme for the two-transmit antenna diversity. [10]

OR

11. Discuss the performance of various Multi – Layer Detection Schemes. [10]

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