B.Tech. SEM -V Info. Tech. 2014 Course (CBCS) : SUMMER - 2019

SUBJECT: ELECTIVE – I : INFORMATION THEORY AND CODING

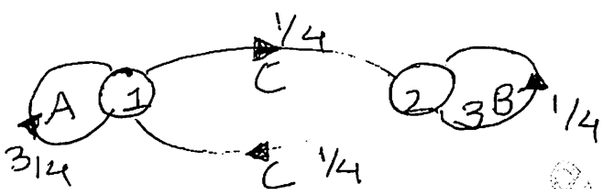
Day: Wednesday | S-2019-2684 | Time : 10.00 AM TO 01.00 PM

Date : 15/05/2019 | Max.Marks: 60

N.B.:

1) All the questions are **COMPULSORY**.
2) Figure to the right indicates **FULL** marks.
3) Draw the neat and labeled diagram **WHEREVER** necessary.
4) Assume suitable data, if necessary.

Q.1 For the information source given draw the tree diagram and the probabilities of messages of lengths 1, 2, 3. **(10)**



Source given emits one of three symbols A,B and C

OR

Explain Mark-off statistical model for information source **(10)**

Q.2 Explain Mathematical model for Discrete communication channels **(10)**

OR

A binary channel has the following noise characteristics **(10)**

P(Y/X)		Y	
		0	1
X	0	2/3	1/3
	1	1/3	2/3

If the input symbols are transmitted with probabilities ¾ and ¼ respectively, Find H(X), H(Y), H(XY), H(Y/X).

Q.3 Explain Shannon-Fano coding. **(10)**

OR

Explain Huffman coding.

Q.4 Find the generator polynomial of triple code correcting BCH code with block length n=31 over GF(2^5). **(10)**

OR

Explain circuit implementation of cyclic codes.

Q.5 Explain Viterbi decoding of convolution codes **(10)**

OR

Explain turbo codes and turbo decoding. **(10)**

Q.6 State and Explain applications of coding technique in cryptography. **(10)**

OR

Explain application and use cases of ITCT. **(10)**

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