Veermata Jijabai Technological Institute

ESE B. Tech Third Year (Semester V)

181090071 **05/12/2020**

This is the subjective part of your examination. Write the answers on a paper, then scan and upload it in the appropriate classroom. All questions are compulsory.

R4ET3004T - Digital Communication Systems

Section 1: 10 marks per question 10

1. Construct extension Field GF (8) in polynomial and power form of element alpha , consider P(X) = X3 + X + 1 be the primitive Polynomial with alpha as its root available in extension field, also find the conjugacy class and minimal polynomial of element alpha power six

Section 2: 10 marks per question 10

1. Define basis vectors and write set of basis vectors for vector space Vn also verify whether the given vectors 1 0 0 0 1 , 0 1 0 1 1, 0 0 1 1 0 over GF(2) are linearly dependent or independent

Section 3: 10 marks per question 10

1. Explain BFSK modulation Techniques with block diagram, draw its power spectral density graph and constellation diagram, also draw waveform for input bit sequence 0 0 1 0

Section 4: 10 marks per question 10

1. Explain integrate and dump receiver with proper block diagram and derive its expression for peak signal to RMS noise output voltage ratio, consider AWGNC, also draw necessary waveforms of signal output and noise output during bit period Tb, consider additive white Gaussian noise channel effect. Also draw waveform to illustrate that noise can cause error in determination of transmitted voltage levels

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