

**ANJUMAN-I-ISLAM'S**  
**KALSEKAR TECHNICAL CAMPUS, NEW PANVEL**  
**School of Engineering & Technology**

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**Subject: CE**  
**Date:**  
**Class: Third Year**

**Marks: 20**  
**Duration: 1Hr**  
**Branch: Electrical**

**Q.1 Solve any two out of three (5 marks each)**

- (a) Draw and Explain the Diode detection circuit. Also explain the Distortions in it .[CO 1]
- (b) The Generator Polynomial of a (7,4) cyclic code is  $g(x) = 1+x+x^2+x^3$ . Draw feedback shift encoder. Use this encoder to find code word for the message ( 10101 ) in systematic form. [CO 4]
- (c) write a short note on FM Noise Triangle.[CO 1]

**Q.2 Solve any one out of three (10 marks each)**

- (a) For a systematic linear block code, the three parity check digits  $C_4, C_5$  and  $C_6$  are given by:

$$C_4 = d_1 \oplus d_2 \oplus d_3$$

$$C_5 = d_1 \oplus d_2$$

$$C_6 = d_1 \oplus d_3$$

- i) Constr  
Construct generator matrix.
- ii) Constr  
Construct code generated by this matrix.
- iii) Determ  
Determine the error correcting capability.
- iv) Prepare  
Prepare a suitable decoding table

Decode the received words 101100 and 000110. [ CO 4 ]

- (b) Draw the TRF receiver and give disadvantages of TRF receiver. Also explain Superhetrodyne receiver. [CO 1]
- (c) Explain with neat diagram the Foster seeley Discriminator of FM detection.[CO 1]

.....**ALL THE BEST**.....