

ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT
NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA

CLASS TEST I Feb24
ECFC-210 Digital Communication

MM 20

Time 50 minutes

- Q. 1 How does a dispersive channel cause ISI? Explain 2
- Q.2 What is a matched filter? Write its important properties. 3
- Q. 3 How can an integrate and dump circuit be used as a matched filter for a rectangular pulse? Explain. 3
- Q.4 Write the equation for average probability of symbol error P_e for a binary symmetric channel. Write meaning of each symbol used in the expression. Also sketch P_e versus E_b/N_0 (in dB) plot. 4
- Q.5 For an ideal channel of bandwidth W , what is the maximum possible data rate for zero ISI? 4
- Q.6 Explain each of the following detection rule. 4
- (i) MAP rule (ii) Maximum likelihood detection rule (iii) Minimum distance decoder (iv) Correlator receiver