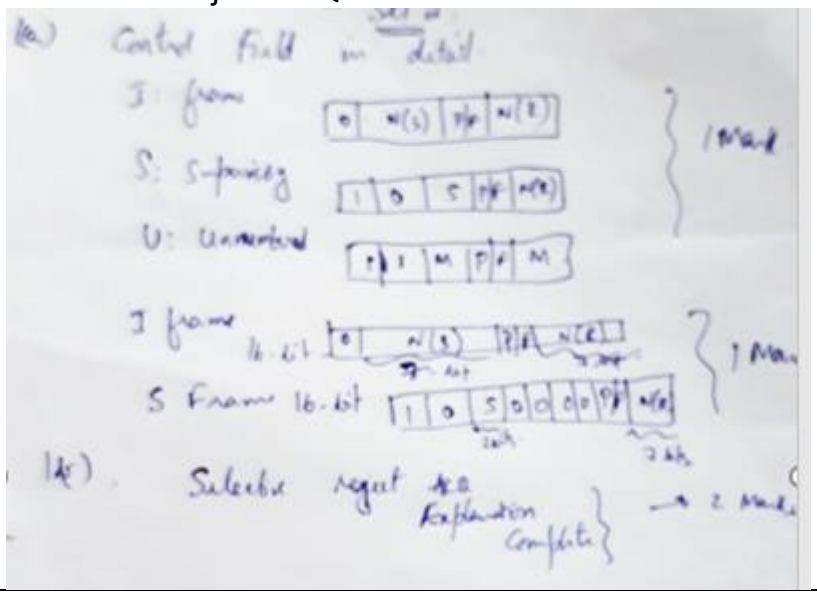
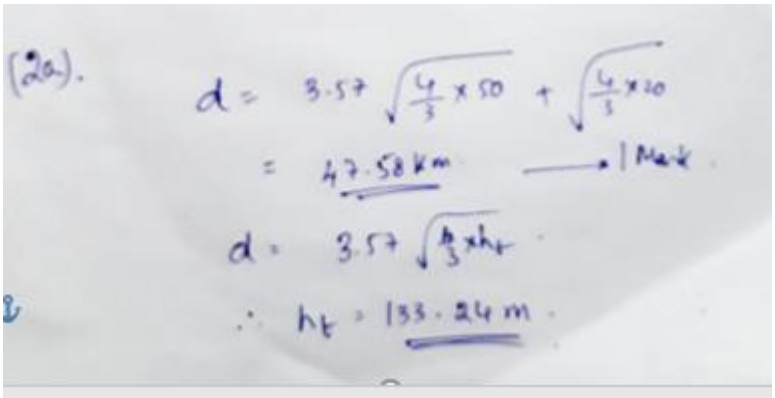
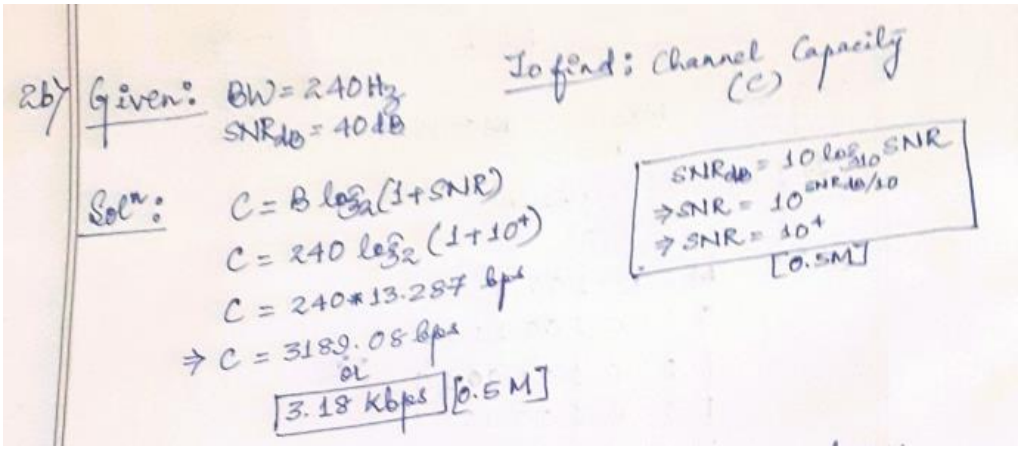
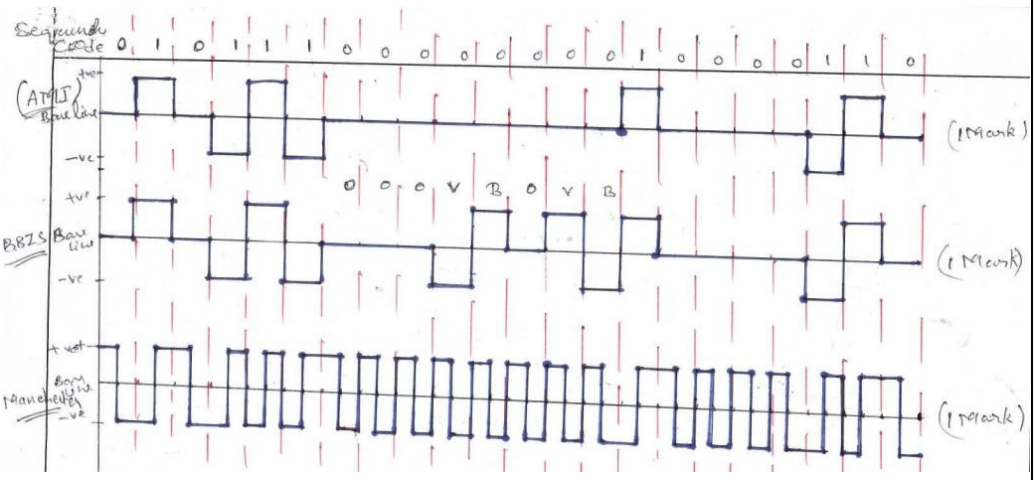
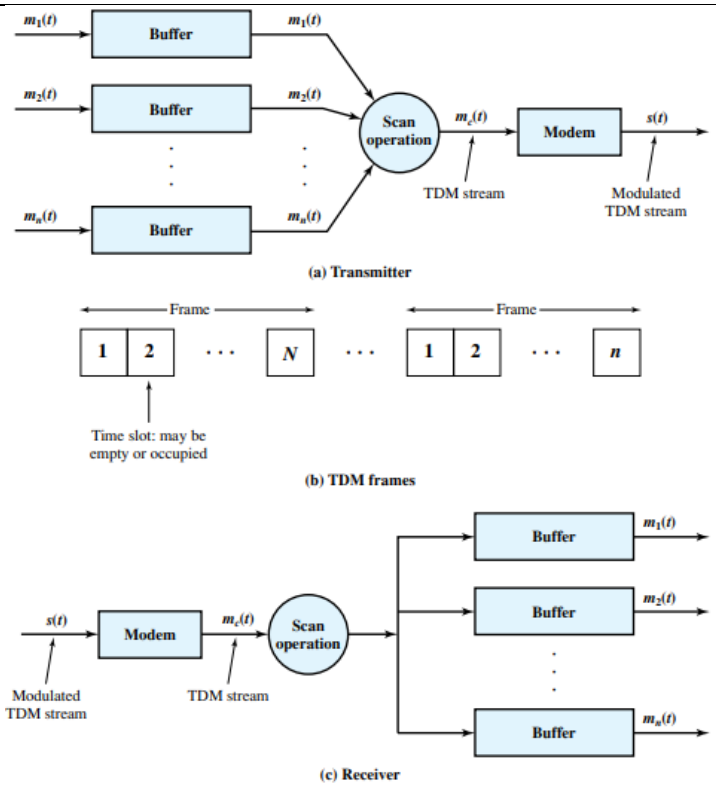
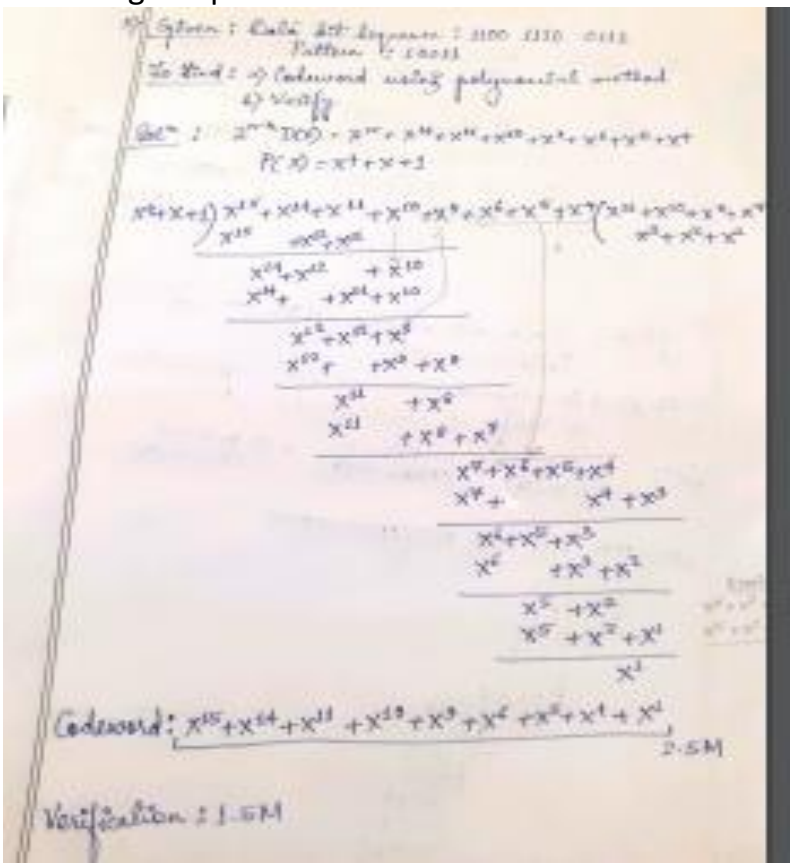
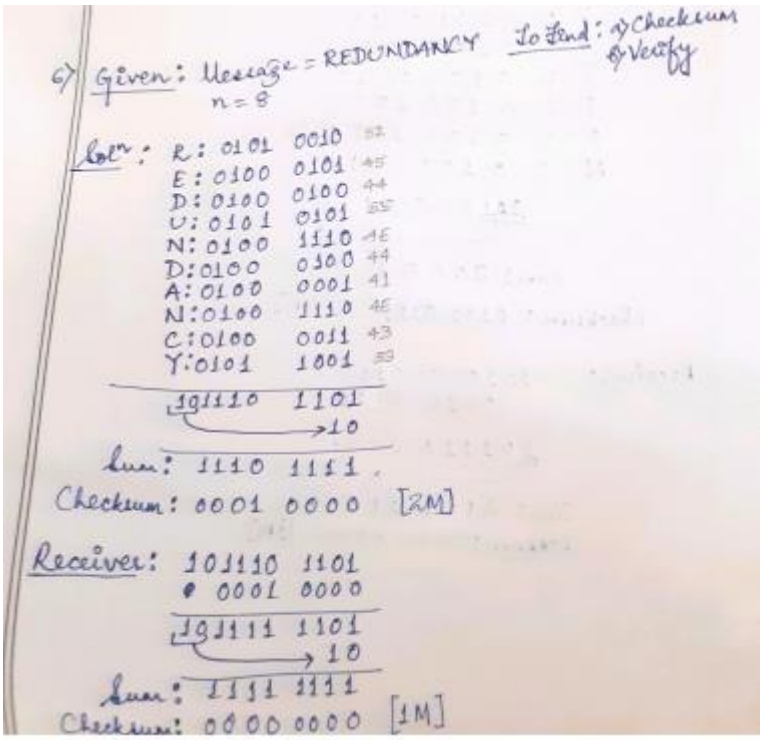
III SEMESTER B.TECH.
(INFORMATION TECHNOLOGY/COMPUTER & COMMUNICATION ENGINEERING)
IN-SEMESTER EXAMINATIONS, DECEMBER 2021
SUBJECT: PRINCIPLES OF DATA COMMUNICATION [ICT 2156]
SCHEME OF EVALUATION
TOTAL MARKS: 20 M

SET-2

1	a. With respect to the standard HDLC frame format, explain the control field features in detail. b. With respect to the error control mechanism, explain the concept of selective reject ARQ. 	1+1+2
2	a. Given that the transmitter and receiver antenna height is 50meters and 20meters respectively, what should be the height of transmitter antenna alone required, if the receiving antenna is at ground level? 	1+1

	b. What is the channel capacity for a telephone channel with a 240-Hz bandwidth and a signal-to-noise ratio of 40 dB, where the noise is white thermal noise?  	0.5+0.5
3	For the bit stream 0101110000000010000110, sketch the waveforms for Manchester, bipolar AMI and B8ZS. Assume that the signal level for the preceding bit for NRZI was high; the most recent preceding 1 bit (AMI) has a negative voltage, and the most recent preceding 0 bit (pseudo ternary) has a negative voltage.  	1+1+1
4	With a neat block diagram of transmitter and receiver, explain how synchronous time-division multiplexing (TDM) works Block Diagram carries 1.5 marks and detailed Explanation carries 1.5 marks	1.5 +1.5

		
5	Using polynomial method representation, generate the codeword for the data bit sequence 1100 1110 0111 and verify at the receiver's end using the pattern 10011 	2.5+1.5

6	What will be the checksum that Alice sends Bob for the following message? Show the steps of working. Verify at the receiver's end as well. Assume n =8 and the equivalent Hexadecimal value of A = 0x41. Message: REDUNDANCY 	2+1