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	Assignment: Error Detection		
1)	A bit stream of 11001101 is transmitted using a standard CRC		
_	method. The generator polynomial is x3+1. Show the actual bit		
	string transmitted. Suppose the fourth bit from left is inverted		
	A bit stream of 1:100:1101 is transmitted using a sundary creen method. The generator polynomial is x3+1. Show the actual bit string transmitted. Suppose the fourth bit from left is inverted during the transmission. Show how the error is detected at the		
	receiver's end.		
Ans:	Given,		
	Data = 11001101		
	Polynomial $eq^n = x^3 + 1$ = $1 \cdot x^3 + 0 \cdot x^2 + 0 \cdot x' + 1 \cdot x^0$		
	CRC = 1001		
	let, the redundant bit be 000.		
	CRC Generation: Sender Side:		
	11010111		
	1001) 11001101000		
	1011		
	-1001		
	0101		
	- 0 0 0 0 0 · · · · · · · · · · · · · ·		
4	1010		
	-1001		
	0111		
	-0000 \ Here, III is remainder ie		
	1110 CRC for regiver side		
	-10011		
	1110		
	-1001		
	1110 - <u>1001</u>		
.	11 1		

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	Case I: Actual bit transmitted
	CRC check: Receiver side
brasion	The second of the real real
(1333)	1001) 11001101111
16.0180	-10011
D.	1011
	-1001
	0101
	-0000
	1010
	-1001
	00111
	-0000
	1111
	-100IV
	TIOT
	-1001V
	1001
	- 100 I
	0000
	Remainder is zero, hence the transmission has
	no error
ge l	
Y: 7 4	ei 122 - 273/1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
i Dr	701 197 (P) (P)
2	
	T : 1 -
	배 붉으로 이렇게 됐는데 하는 그들은 사람들은 이 선생님은 사람들이 가장하는데 그는 그는 것이 되었다. 그는 그를 가장하는데 그는 그를 가장하는데 그렇게 되었다.

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If ym bit	from left	ini ej	ierted.	diring	the -	transm	lespr
18.5	-	1 1 1 1	, .	1-0	100		
eck: Receive	er side	N-6-17-11	1	1			
110001	01	i Win F					
) 1101110:		<u>. Anni</u>					11, 11
-100111							
1001			J. 1-2	10 K		. sqh	
-1001	3	1 toris	4.1.2	1011		•	
0001							

11000101	
11011101111	cause the time
1001	
1001	100 / n King
-1001	13 days 1 6 feet 2 33 ll 1
0001	
-0000	
0010	
- 00001	
0101	e manyana si
- 000 o↓	
1011	is his programmed in
- 1001	macrost Valle
0101	
-000 D	J. Shire Mirris
T0'1	
- 100	
0.1	

CRC check: Receiver side

1001

hence the transmission : Remainder is non-zero, some error.

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	ruge	

13/13	2) Suppose the following block of 16 bits is sent using a check- sum of 8 bits. 1001010000110001. Compute the checksum			
	function of 8 bits. 5 1001010001310001: Compare the checken			
	I verify the transmission without any error. Suppose the LSB of first agment is inverted. Show how the error is detailed at the receiver's end.			
	delated at the agreent to inverted a source of the error is			
	detected at the receivers end.			
Ans:				
alls:				
-	Two 8 bits numbers are added.			
and the second second	10010100			
	+00110001			
-	11000101			
	1's complement of 11000101 = 00111010			
	The pattern sent 19:			
	1001010000110001 = 00111010 + checkaum			
	1010			
	Receiver side			
	The received data along with checksum is added.			
	E C 10 0			
	10010100			
	00110001			
	DESTRUCTOR OF THE OPENING			
	1111111			
	13 complement of 11111111 = 00000000			
	There is no error in transmission.			
-				

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Again, If LGB of first syment is inverted during transmir esion, Sender side The block of 16 bibs to be sent using a checkeum 8 bits: 10010100 00110001 The two 8 bit numbers are added: 10010100 + 00110001 11000101 1's complement of 11000101 = 00111010 .. The pattern sent is: 10010100 00110001 00111010 Receiver side: The received data alongwith checksum is added: 100101001 00110001 + 00 111010 1000000000 Ignoring carry over: Sum = 00000000 1's complement of 00000000 = 11111111 .. The result is non-zero ie there exists some error in transmission.