(1)

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Assingment No: 1

i) Given that,

$A = 100 + (x_1 * x_2)$ | $\because x_1 = 8$, $x_2 = 7$

$= 100 + 56$

$= 156$

and,

$B = 2 \times A = 312$

Here four channel are used.

ii) Two of them with a bit rate of A Kbps = 156 Kbps and two with a bit rate of B Kbps = 312 Kbps.

iii) Input bit rate = 312 Kbps

= 312 000

iv) The Unit bit duration on the duration of a bit before mutiplying is 1/1 Kbps or 0.001s.

(P.t.o)

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v) The frame rate = $\frac{\text{input bitrate}}{\text{multiplexing bit}}$

$= \frac{312\,000}{1}$

$= 312000$ fram/s

$= 312$ K.fram/s

The frame rate is equal to the input bit rate because it carries 1 bit at a time.

vi) The frame duration = $\frac{1}{312000} \times 1$

$= 0.00000320$ s

$= 3 \times 10^{-6}$ s

$= 3$ mics

vii) The output time slot duration:

$= \frac{\text{input time slot}}{n}$

$= \frac{3 \times 10^{-6}}{3}$

$= 1 \times 10^{-6}$

$= 1$ mics

(Pt.0)

∵ Here $n = 3$
As final input channel is 3

viii)

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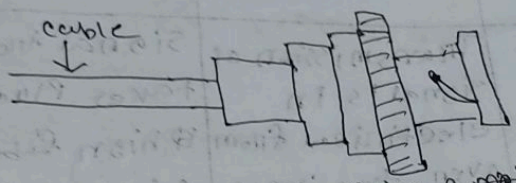
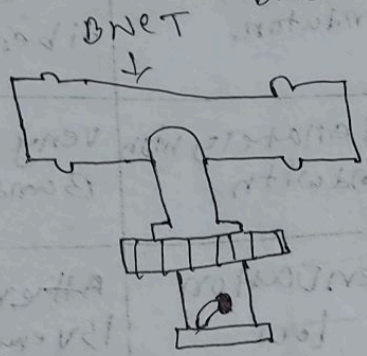
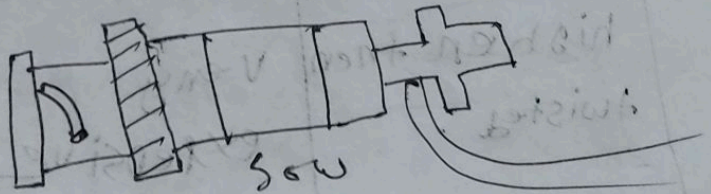
viii) The bit rate of link =
input bitrate × n
= 312000 × 3
= 936000 bps
= 936 kbps

Assignment No. 2



BNC connection





BNC termination

Ground wire (P.T.O)

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Assingment no-3

From 7 we got the data

$(100 + x_1 + x_2)_{10}$ $[x_1 = 8, x_2 = 7]$

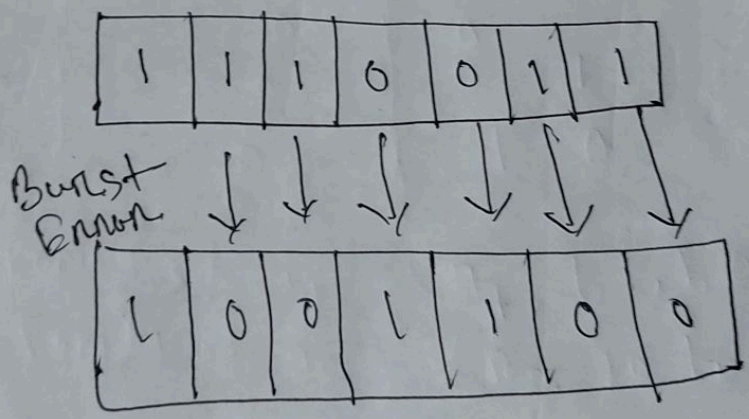
$= 100 + 8 + 7$

$= (115)_{10}$

$(115)_{10} = (1110011)_2$

Send data = 1110011

Recived data = 1001100



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Assignment no - 4

Here $x_1 = 8$

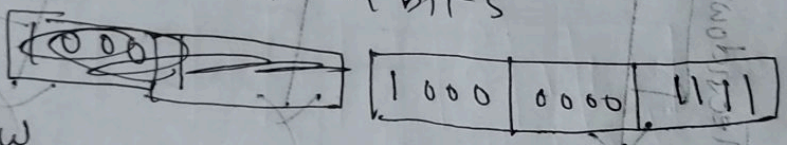
$x_2 = 7$

Data = $2048 + 8 + 7 = 2063$

$= (2063)_{10}$

Now $(2063)_{10}$ converting into Binary $= (100000001111)_2$

i) The given data divided into segments of 4 bits



Now,

section 1 : 1111

section 2 : 0000

section 3 : 1000

sum → 10111

(P.T.O)

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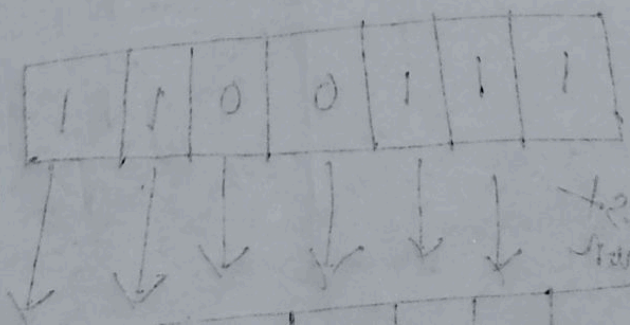
1's complement is 01000

Thus checksum value = 01000

(ii) LSB is Alternes,

01001



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Assignment no: 5

Twisted Pair cable	Coaxial cable	fiber optic cable
It is a kind of wiring in which two conductor of a single circuit twised	It is designed to transmit high frequency signal	It is refferred to a optical fiber cable is a type of a Ethernet
Transmission of signals takes place in the eletrical from. over metallic conduting wire	Transmission of signal is in electrical from over the inner conduton	Signal transmission takes place in high form of over glass fiber
low Bandwith	moderately high Bandwith	very high Bandwith
Attenuation is very low	Attenuation is low	Attenuation is very high
very low Price	higher then twisted	very expensive

④

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Assignment No-7

$x_1 = 8 \quad x_2 = 7$

∴ Data = $(115)_{10}$

$(115)_{10} = (1110011)_2$

So, Digital data 1 1 1 0 0 1 1

MSB ↑ ↑ LSB

MSB is altered during transmission

∴ New data = 0 1 1 0 0 1 1

Here $m = 7$

$n = 2$

$2^n \geq m + n + 1 \quad n \geq 1$

$2^2 \geq 7 + 2 + 1$

$\Rightarrow 4 \geq 10$

$4 \ngeq 10$

∴ $2^4 \geq 7 + 4 + 1$

$16 \geq 12$

So, $n = 4$

(P.T.O)

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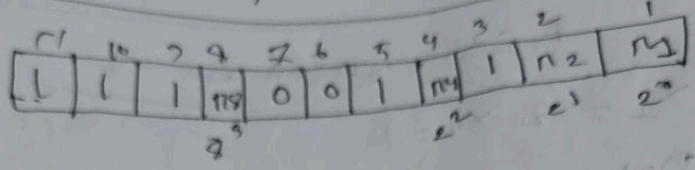

	n_8	n_4	n_2	n_1
1 →	0	0	0	1
2 →	0	0	1	0
3 →	0	0	1	1
4 →	0	1	0	0
5 →	0	1	0	1
6 →	0	1	1	0
7 →	0	1	1	1
8 →	1	0	0	0
9 →	1	0	0	1
10 →	1	0	1	0
11 →	1	0	1	1

The Parity of $n_1 = (n_1, 1, 1, 1, 0, 0, 0) = 1$

The Parity of $n_2 = (n_2, 1, 0, 1, 1, 0, 0) = 1$

(P T O)

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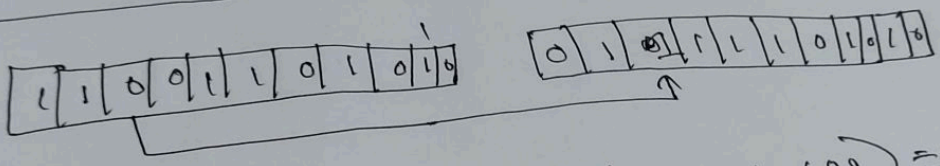
The Parity of r_4 = ~~$(r_4, 1, 0, 1) = 1$~~
$(r_4, 1, 0, 0, 1) = 0$

The Parity of r_8 = $(r_8, 0, 1, 0) = 1$

Single bit error:



The Parity of $c_1 = (1, 1, 1, 0, 0) = 1$
" " $c_2 = (1, 1, 0, 0, 1) = 1$
" " $c_4 = (0, 1, 0, 0) = 1$
" " $c_8 = (0, 1, 0, 1) = 0$

Now Error detection given below,

$$\begin{pmatrix} c_8 & c_4 & c_2 & c_1 \\ 0 & 1 & 1 & 1 \end{pmatrix}_2 = (7)_{10}$$

(11)

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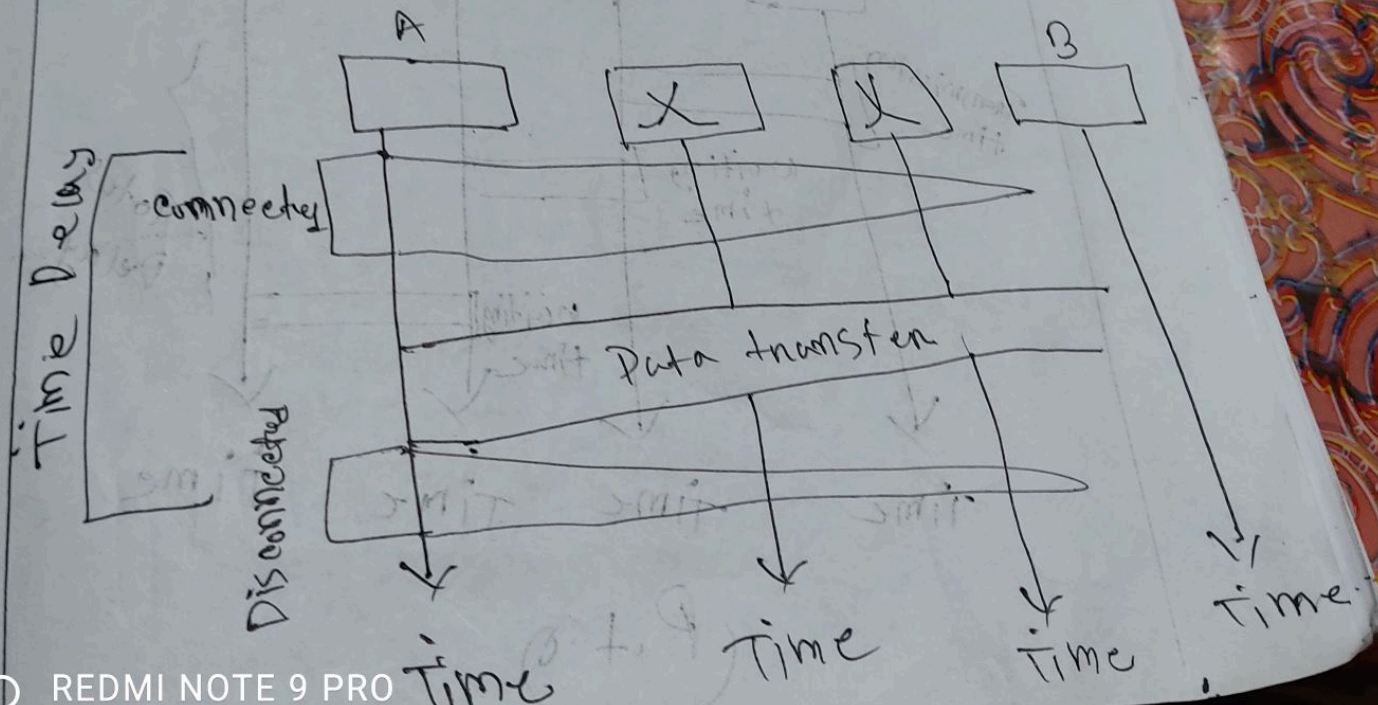
Assingment No: 8

circuit ~~Switch~~ Switched network:

Efficiency: It can be argued that this network not as efficient as other two types because resource are allocated during the entire duration of the connection.

Delay: During Data transfer the Data are not delayed at each switches.



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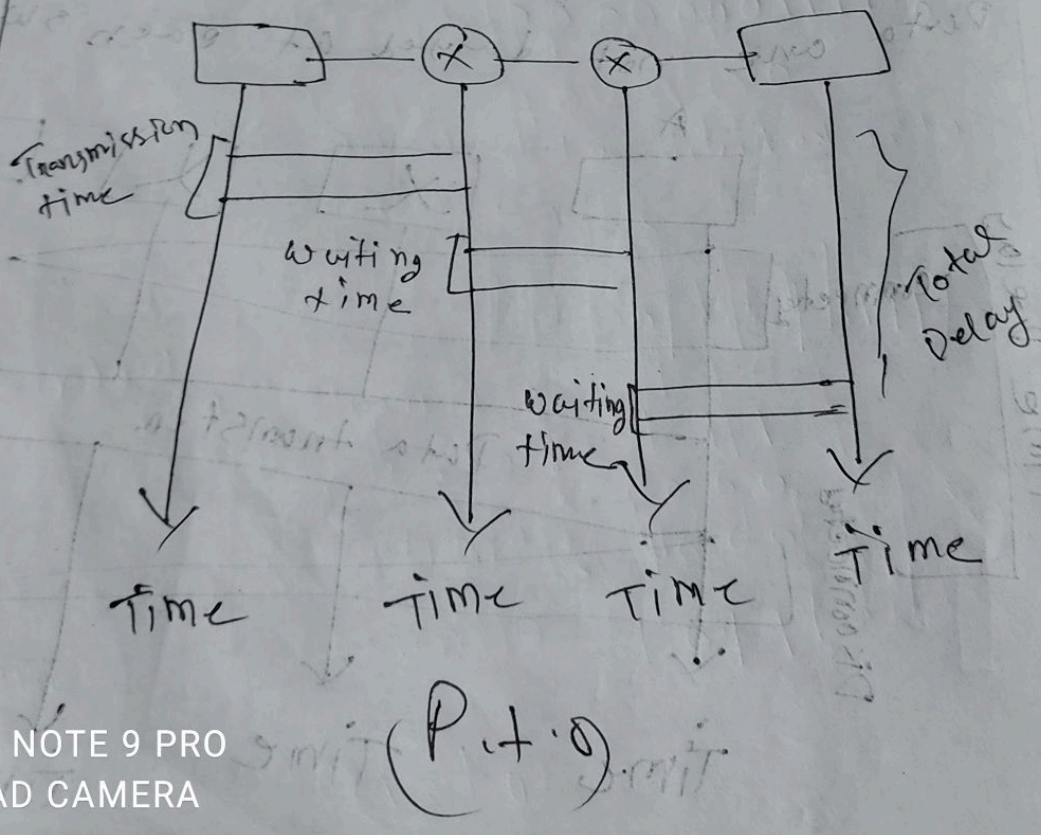
Packet Switching:

Efficiency: Packet switching is classified as data gram net work. In a data gram network each packet are treated indenently.

Delay:



(P.t.O)

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Virtual - circuit network: A virtual circuit network is a cross between a circuit switched network and a datagram network.

Delay: