Vidyavardhini's College of Engineering and Technology

Department of Artificial Intelligence & Data Science

AY: 2024-25

Class:	TE	**Semester:**	V
Course Code:	CSC501	**Course Name:**	CN

Name of Student:	Sainath khot
Roll No. :	20
Assignment No.:	2
Title of Assignment:	Frame Transmission
Date of Submission:	~~IP address & Dijkastra Algorithm~~
Date of Correction:	

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Completeness	5	04
Demonstrated Knowledge	3	02
Legibility	2	01
Total	10	07

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Completeness	5	3-4	1-2
Demonstrated Knowledge Legibility	3	2	1
Legibility	2	1	0

Checked by

Name of Faculty : Sneha Yadav

Signature :

Date : 18/10/24

Q1

=) The frame transmission time is 200/200 kbs or 1ms

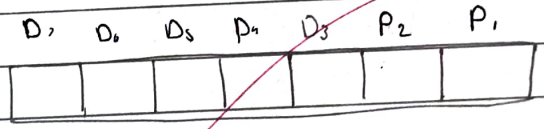
a) If the system creates 1000 frames per second or 1 frame per millisecond, then $G = 1$. In this case $S = G \times e^{-2G} = 0.135$ (13.5 %). This means that the throughput is $1000 \times 0.135 = 135$ frames. Only 135 out of 1000 frames will probably survive

b) If the system creates 500 frames per second or 1/2 i.e $G = 1/2$. In $S = G \times e^{-2G} = 0.184$ (18.4 %). This means that throughput is $500 \times 0.184 = 92$ and that only 92 out 500 frames will survive. This is more throughput case, percentage wise

c) If the system creates 250 frames per second or 1/4 frame per second then $G = 1/4$ & $S = G \times e^{-2G} = 0.152$ (15.2 percent). This means that the throughput is $250 \times 0.152 = 38$. Only 38 out of 250 will survive

Q2

=)



Step 1 : Analyse bits 4, 5, 6 & 7 :

$P_4\ D_5\ D_6\ D_7 = 1101$ → Odd parity

∴ error exists here

∴ Put $P_4 = 1$ in 4's position

Step 2 Check the bits 2, 3, 6, 7

$\therefore P_2\ D_3\ D_6\ D_7 = 1001$ → even parity no error

Hence put $P_2 = 0$ in 2's position of the error word

Step 3 Check bits 1, 3, 5, 7

$\therefore P_1\ D_3\ D_5\ D_7 = 1011$ → odd parity ∴ error

∴ Put $P_1 = 1$ in 1st position of the error word

Step 4: Write the error word:

Error word E = | P_4 | P_2 | P_1 |

P_4: 4's position, P_2: 2's position, P_1: 1's position

- Substituting the value P_4 P_2 & P_1 in step 1, 2 & 3

E = | 1 | 0 | 1 |

$E = (5)_{10}$

Here bit 5 of transmitted codeword is in error

7	6	5	4	3	2	1
1	0	1	1	0	1	1

↑ incorrect bit

Step 5: Correct the error

→ Invert the incorrect bit to obtain the correct codeword.

∴ Correct codeword = [1 0 0 1 0 1 1]