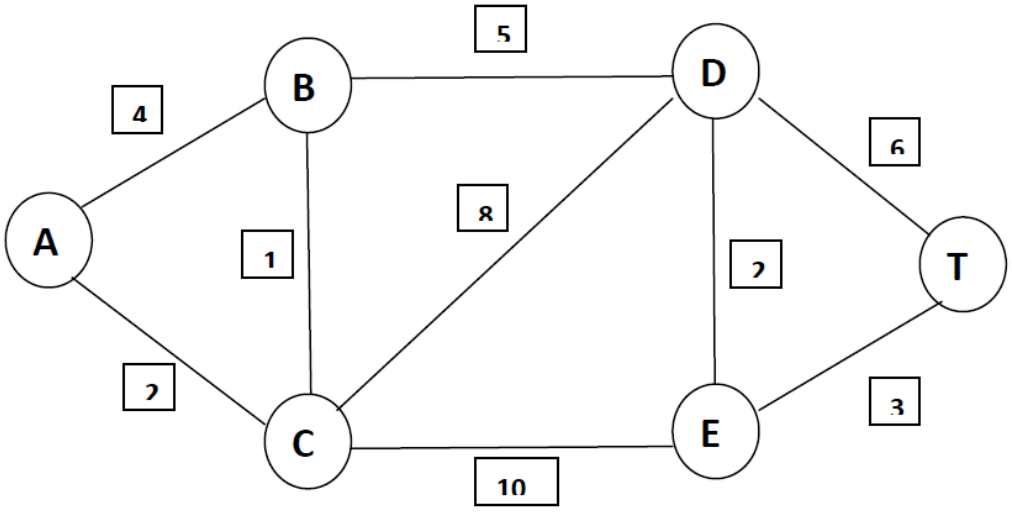
Assignment 5

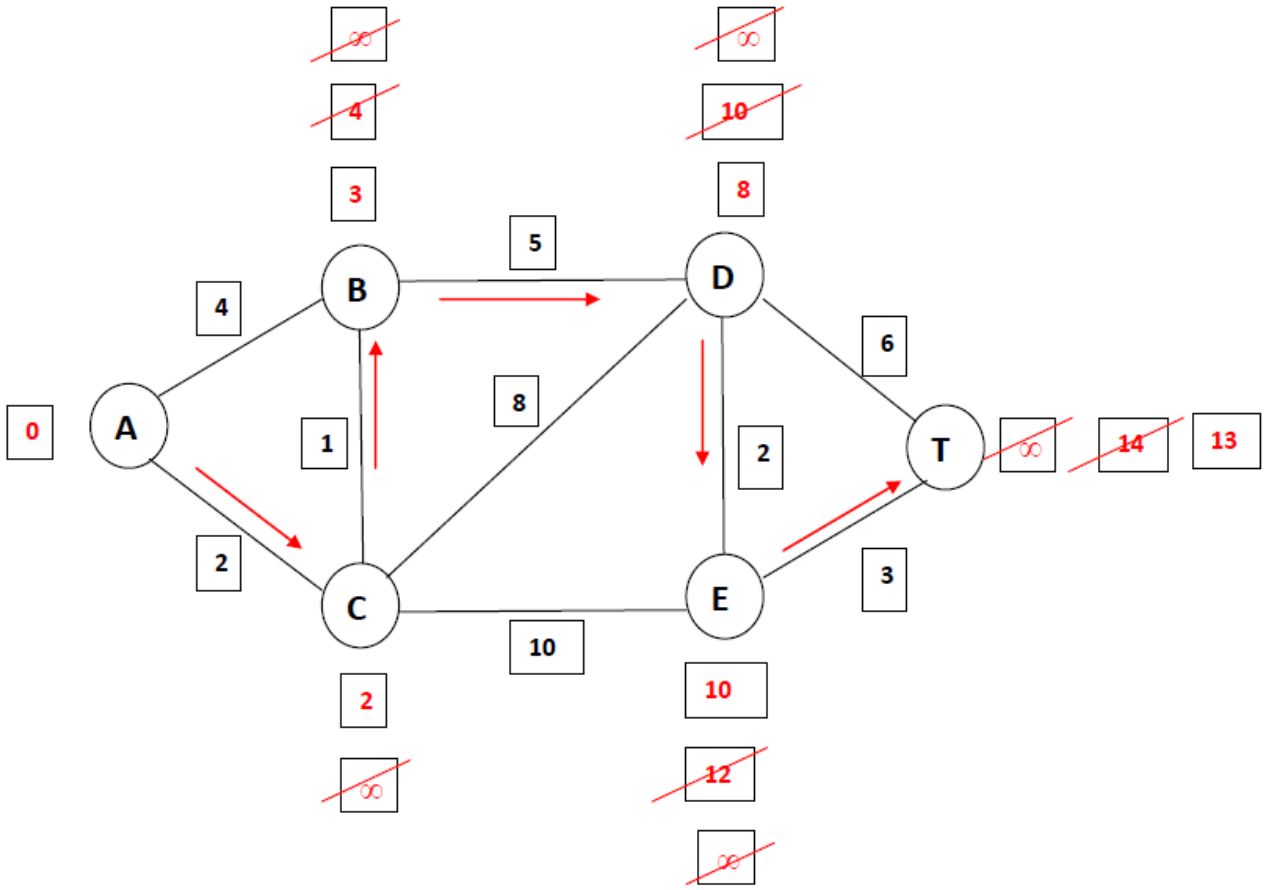
Covered Topics:-
Dijkstra's Algorithm and Encoding Schemes

Problem 1

Create the routing table of the router 'A' in the following network and determine the cost if the destination is the router T. (Dijkstra's Algorithm)



Solution: -



Problem 2

Create the routing table using the data in the previous question (Destination, Next hop, Cost).

Solution:-

Destination	Next Hop	Cost
B	C	3
C	C	2
D	C	8
E	C	10
T	C	13

Problem 3

Find the interface each IP address should go through.

Prefix Match	Link Interface
10.50.20.0 /24	0
10.50.20.0 /22	1
10.50.0.0 /16	2
10.0.0.0 /8	3
Otherwise	4

a) 10.50.20.10
b) 10.50.20.16
c) 10.0.0.50
d) 24.0.0.1

Solution: -

Prefix Match	Link Interface
10.50.20.10	0 or 1
10.50.20.16	0 or 1
10.50.0.50	3
24.0.0.1	4

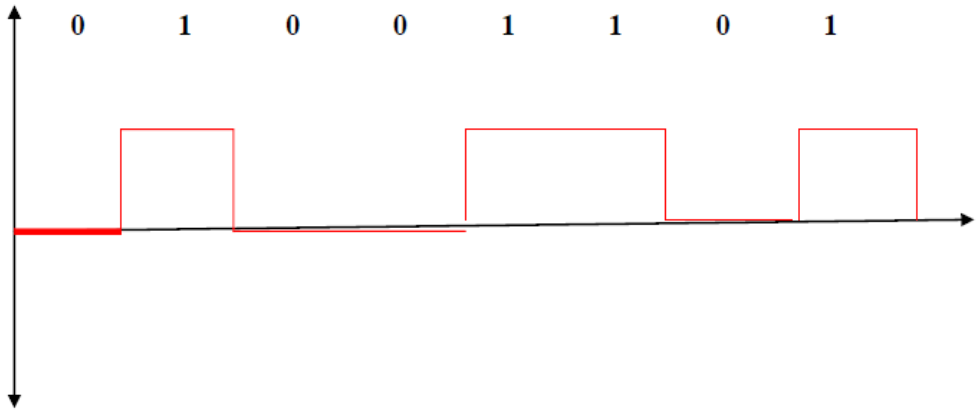
Problem 4

Draw for the follow bits their corresponding graph for the following coding schemes: (01001101)

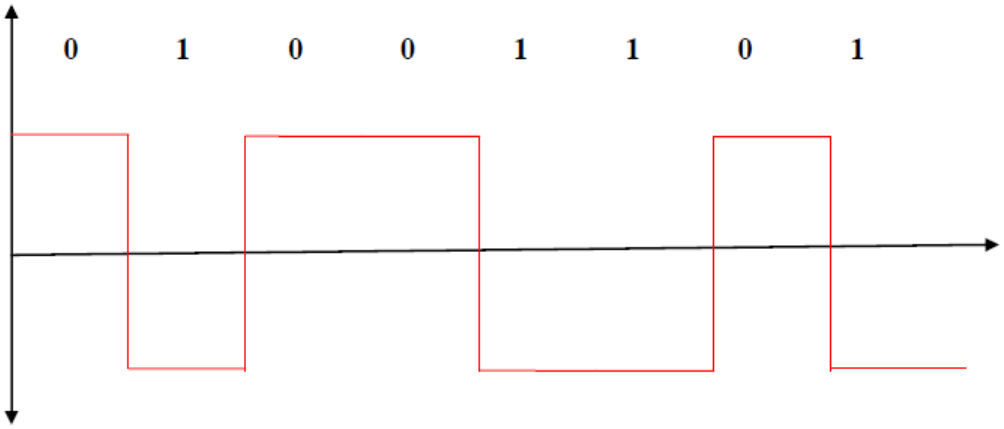
a) UniPolar.
b) Polar (NRZ-L, NRZ-I, RZ).
c) Bipolar AMI.

Solution: -

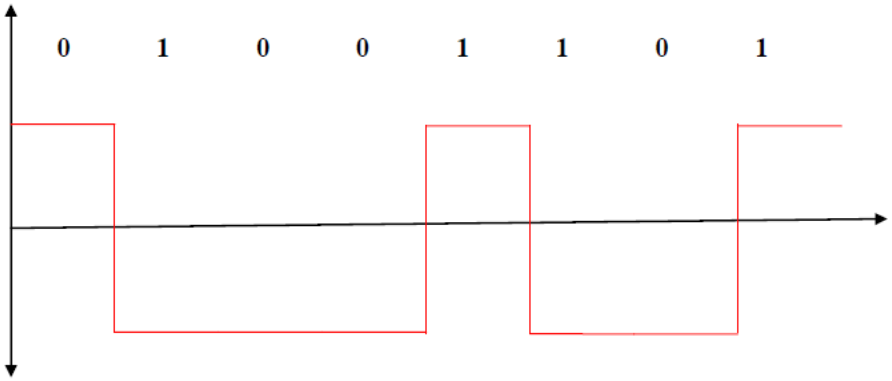
a) UniPolar



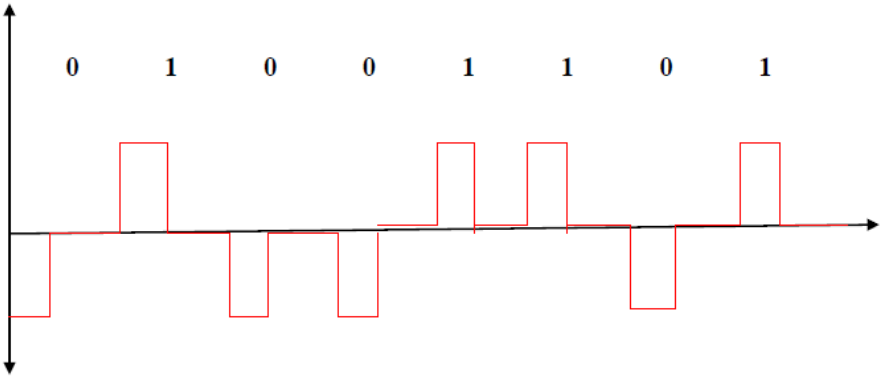
b) Polar (NRZ-L)



c) **Polar (NRZ-I)**



d) **Polar (RZ)**



e) **Bipolar AMI.**