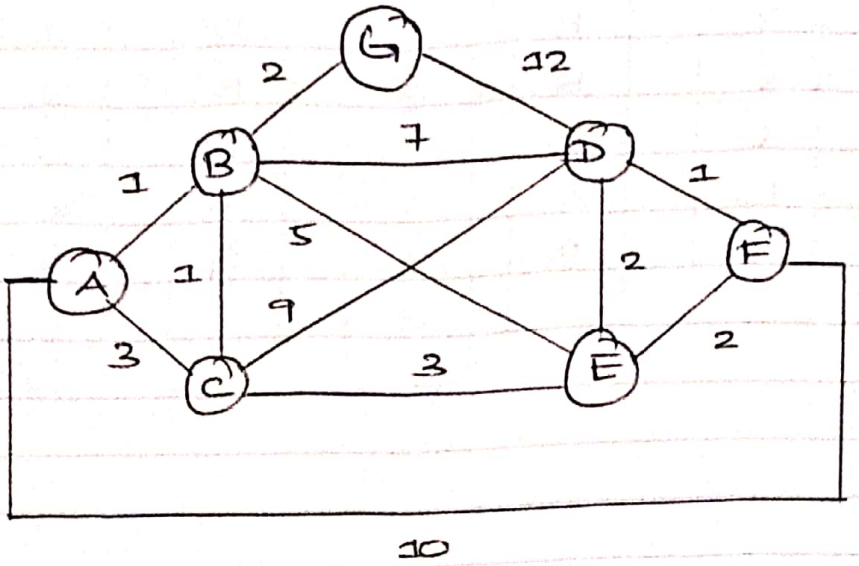
PST - CLASSWORK

< DIJKSTRA'S ALGORITHM >



Q1) I]

(STEP 1)

VERTICES	DISTANCE	OPTIMAL PREV
A	∞	ϕ
B	∞	ϕ
C	∞	ϕ
D	∞	ϕ
E	∞	ϕ
F	∞	ϕ
G	∞	ϕ

V	D	OP
~~A~~	0	ϕ
B	1	A
C	3	~~A~~
D	∞	ϕ
E	∞	ϕ
F	10	A
G	∞	ϕ

< STEP 2 >

V	D	CP
~~A~~	0	ϕ
~~B~~	1	A
C	2	B
D	8	B
E	6	B
F	10	A
G	3	B

< STEP 3 >

V	D	CP
~~A~~	0	ϕ
~~B~~	1	A
~~C~~	2	B
D	8	B
E	5	C
F	10	A
G	3	B

< STEP 4 >

V	D	CP
~~A~~	0	ϕ
~~B~~	1	A
~~C~~	2	B
D	8	B
E	5	C
F	10	A
~~G~~	3	B

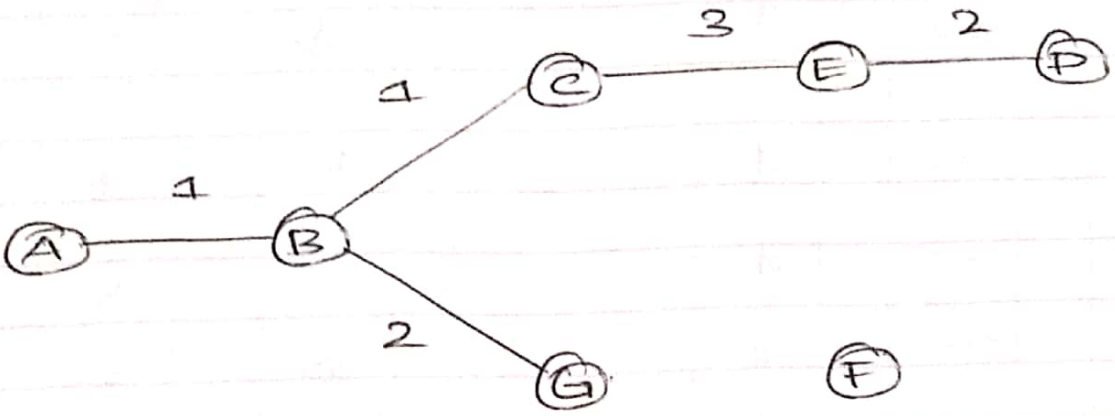
< STEP -5 >

V	D	CP
~~A~~	0	ϕ
~~B~~	1	A
~~C~~	2	B
D	7	E
~~E~~	5	C
F	7	E
~~G~~	3	B

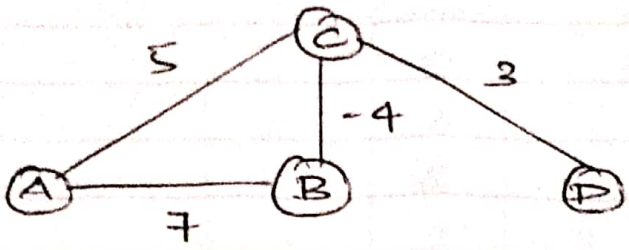
< STEP 6 >

V	D	Φ
A	0	ϕ
B	1	A
C	2	B
D	7	E
E	5	C
F	7	E
G	3	B

< SHORTEST PATH >



11] DIJKSTRA'S ALGO WITH NEGATIVE GRAPH



(STEP 1)

V	D	Φ
A	∞	Φ
B	∞	Φ
C	∞	Φ
D	∞	Φ

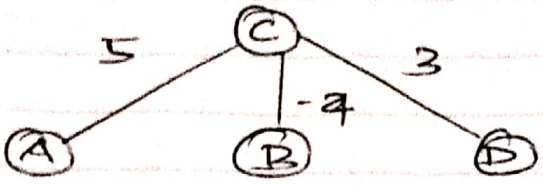
V	D	Φ
~~A~~	0	Φ
B	7	A
C	5	A
D	∞	Φ

(Step-2)

V	D	Φ
A	0	Φ
B	1	B
A	5	A
D	6	C

(Step-3)

V	D	Φ
A	0	Φ
B	1	B
A	3	A
D	6	C



Total = (4)

less than =

4 < 7.

A negative value in graph will return a -ve value (incorrect).

Q2> Finding the minimum value can be improved by using priority queue.

It uses (log n) instead of n².

X — X