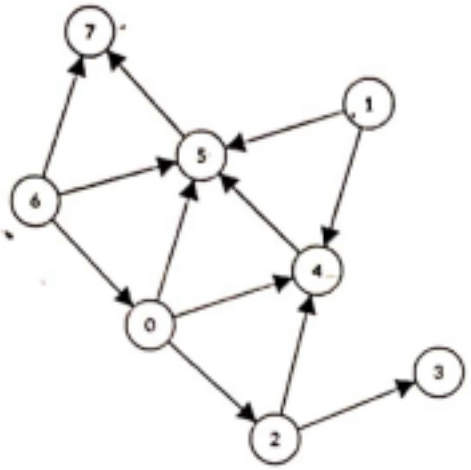
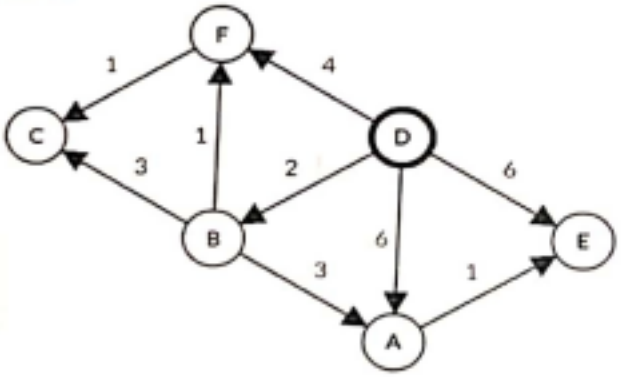
15

Name: Roll: Section: 14

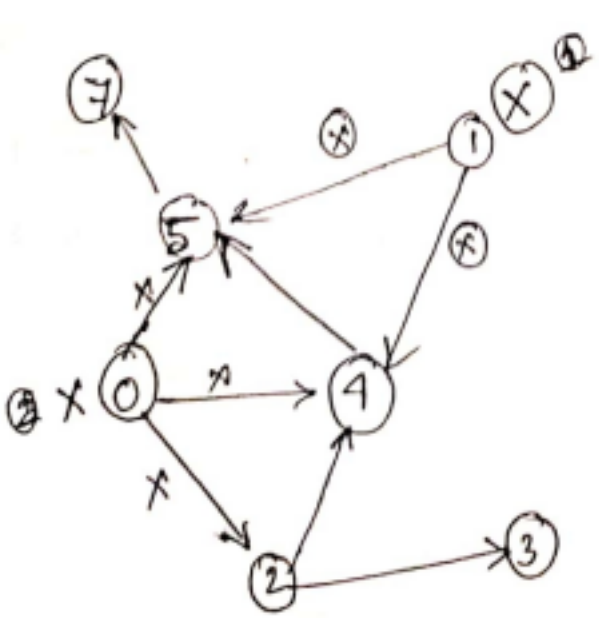
[CO1] Using Proper algorithm and showing each steps find out the Topological ordering of the given graph. (7)

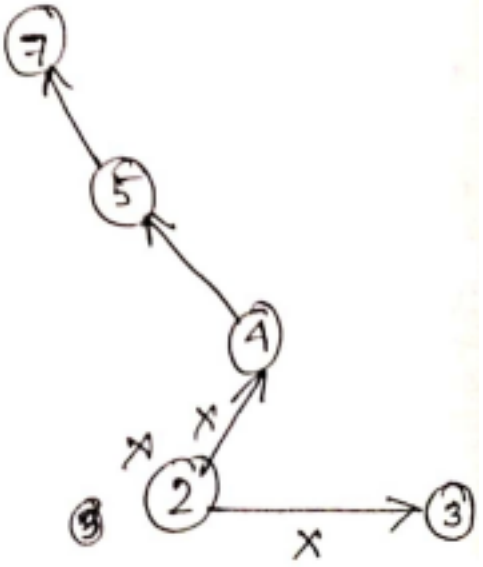


[CO3] Using Dijkstra's algorithm showing each steps find out the shortest distance of each vertices from vertex D. (8)



(1)



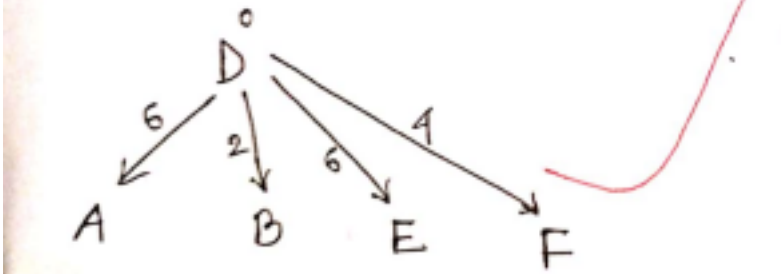


Pls turn to last pg

Ans to the ques no. 2

Vertex	Distance	Parent (P)
D	~~∞~~ 0	n
E	~~∞~~ 6	~~n~~ D
F	~~∞~~ ~~4~~ 3	~~n~~ ~~D~~ B
A	~~∞~~ ~~6~~ 5	~~n~~ ~~D~~ B
B	~~∞~~ 2	~~n~~ D
C	~~∞~~ ~~5~~ 4	~~n~~ ~~B~~ F

~~C~~
~~B~~
A
~~F~~
E
~~D~~

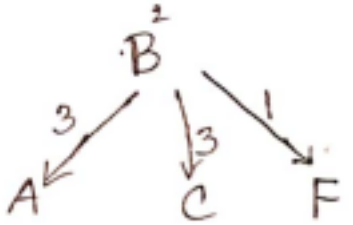


i) ✓
ii) 0+6<∞ True
iii) A=6
v) P=D

i) ✓
ii) 0+2<∞ True
iii) B=2
iv) P=D

i) ✓
ii) 0+6<∞ True
iii) E=6
iv) P=D

i) ✓
ii) 0+1<∞ True
iii) F=1
iv) P=D



i) ✓
ii) 5<6
iii) A=5
iv) P=B

i) ✓
ii) 5<∞
iii) C=5
iv) P=B

i) ✓
ii) 3<4
iii) F=3
iv) P=B

F 3
↓ 1
C

i) ✓
ii) 4 < 5
iii) C = 4
iv) P = F

C
↓
X

A 5
↓ 1
E

i) ✓
ii) 6 < 6
False

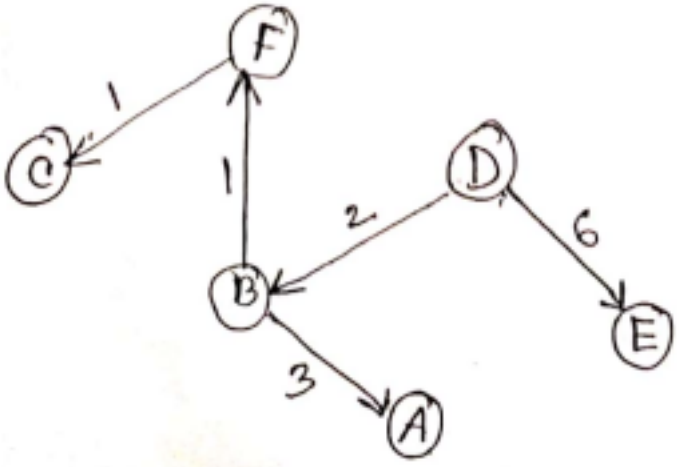
E
↓
X

---

i) Check if in PQ
ii) Source distance + cost < final distance & Check
iii) If (ii) true, update distance of destination and
iv) update parent

Before these 4 steps, check and pop out the selected vertex from PQ.

Here,



Ans. to the ques. no-1

① Ingoing = 0 [6, 1]

② Ingoing = 0 [0]

③ Ingoing = 0 [2]

④ Ingoing = 0 [3]

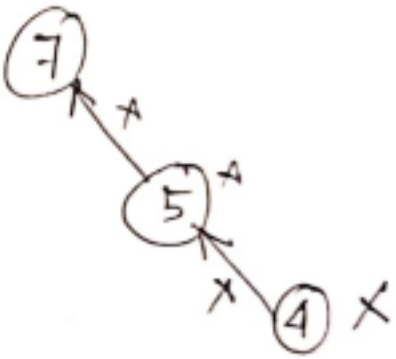
⑤ Ingoing = 0 [4]

⑥ Ingoing = 0 [5]

⑦ Ingoing = 0 [7]

i) Ingoing = 0 vertex out

ii) Cancll edges



③ X

6

Output : 6 → 1 → 0 → 2 → 3 → 4 → 5 → 7

(Ans)