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HERALD COLLEGE KATHMANDU

Academic Year	Module	Assessment Number	Assessment Type
S20	Introductory Data Structures and Algorithms (DipIT02)	A1	Assignment Submission

[Assignment Submission]

Student Id : [NP03A190299]
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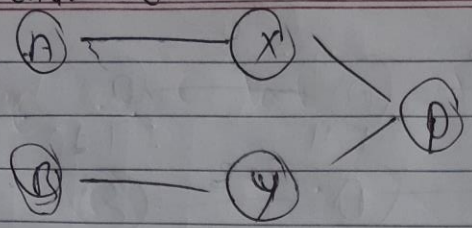
Section : [DC8]
Module Leader : [Mr. Prakash Gautam]

Submitted on : 06-03-2020

Page No.
Date : / /

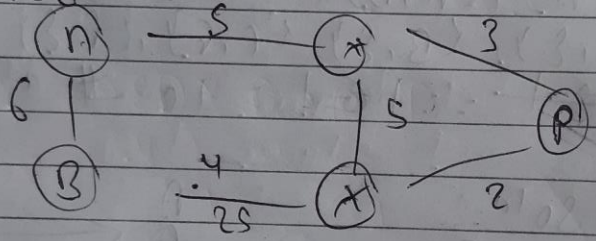
Tutorial - 10

1)

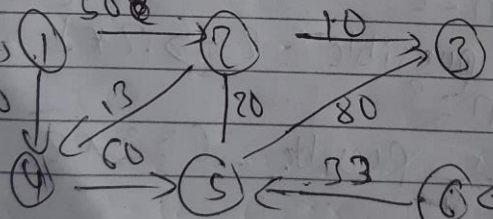


Sol:
According to the prims algorithm value of x, y > 4 i.e. 5, 6, 7 . . . and value of A-B > 5 i.e. 6, 7, 8, 9.

Now,



2) Source → 1



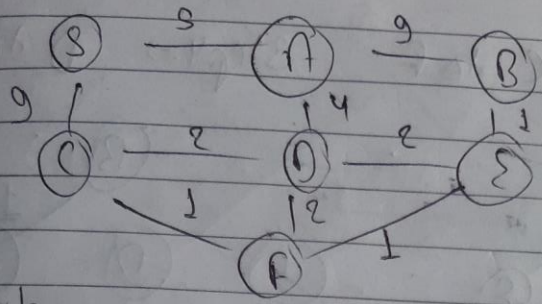
→ We can calculate the shortest in table.

Vertices	1	2	3	4	5	6
(1 source)	0_1	50_1	∞_1	40_1	∞_1	∞_1
4 (source)		50_1	∞_1	40_1	100_4	∞_1
2		50_1	60_2		60_2	∞_1
3			60_2		70_2	∞_1
5					70_2	103_5
6						103_5

∴ The path is 1, 2, 5, 6

Page No.
Date : / /

37



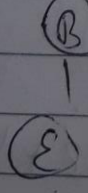
Sol.

Solving by kruskall's Agorith.

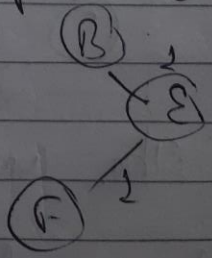
Edges	Edges	weight
B	E	1
E	F	1
C	F	1
D	F	2
D	E	2
C	D	2
A	D	4
S	A	5
C	S	9
F	B	9

Again,

Step 1 → B to E

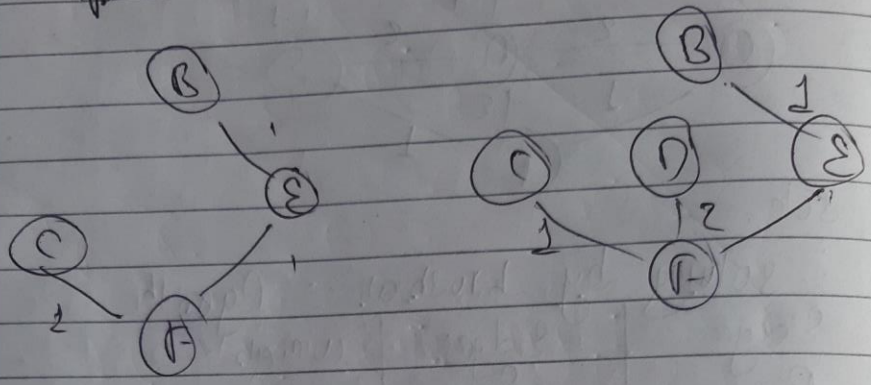


Step 2 → E to F

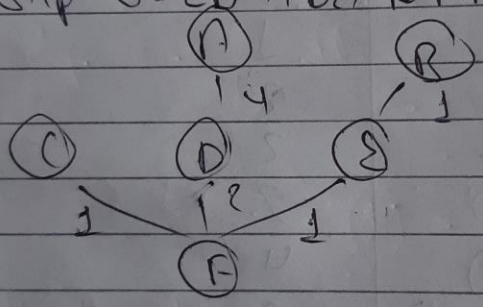


Page No.
Date : / /

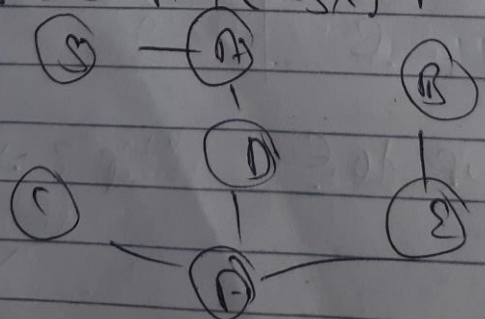
Step 3 → C to F Step 4 → D to F



Step 5 → ED ∀, DE* ∈ AD



Step 6 → S-A, C-SX, A-B+

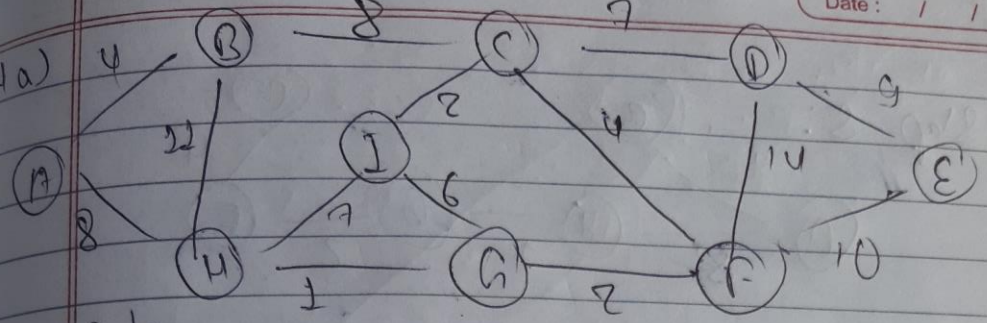


∴ The weight of = 1+1+1+2+4+5
= 15

Number of Edges (E) = |V| - 1
= 7 - 1 = 6 #

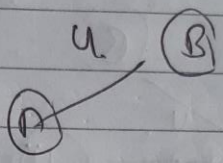
Page No.
Date : / /

4a)

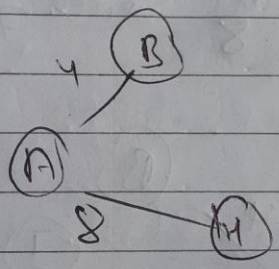


Soln.

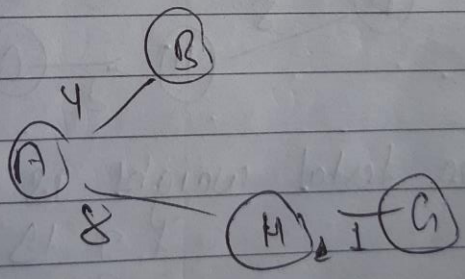
Step 1 →



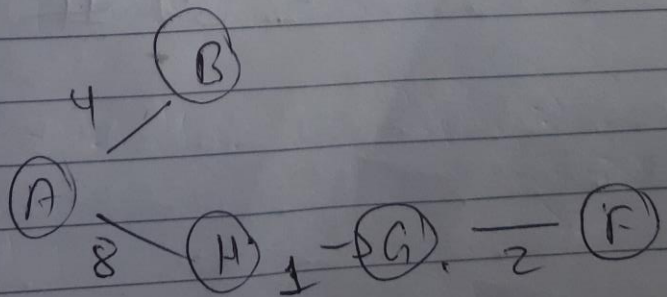
Step 2 →



Step 3 →

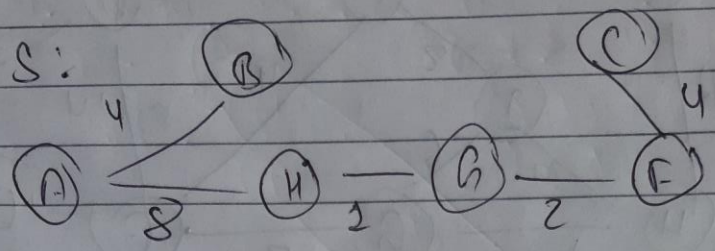


Step 4 :

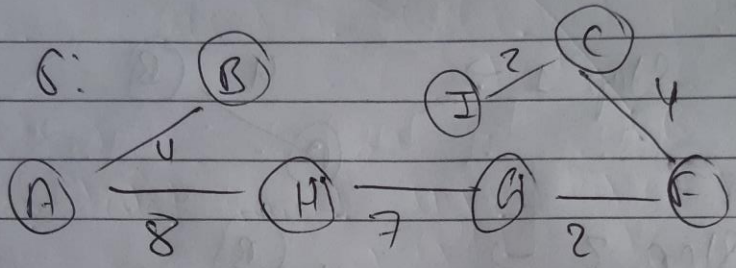


Page No.
Date : / /

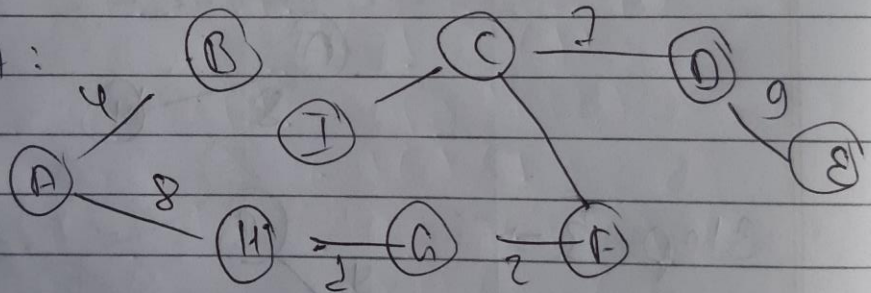
Step 5:



Step 6:



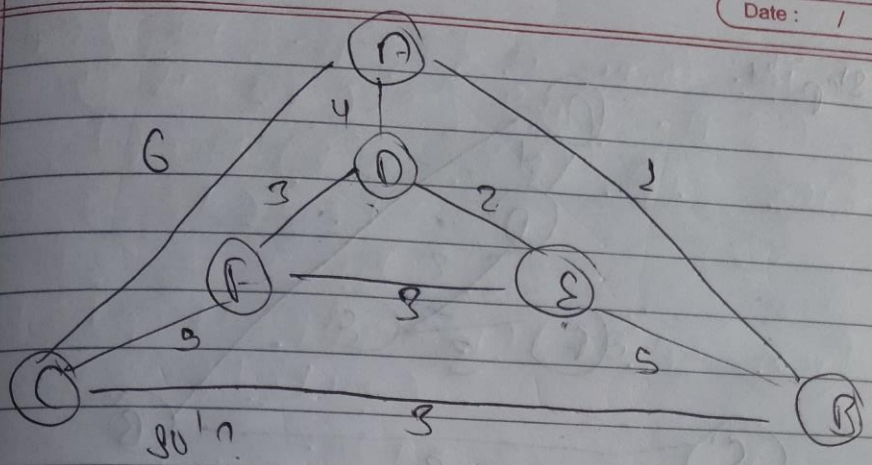
Step 7:



∴ The total weight is 4+8+1+2+4+2+7+9
= 37 ##

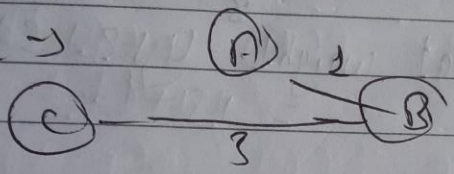
Page No.
Date : / /

b).

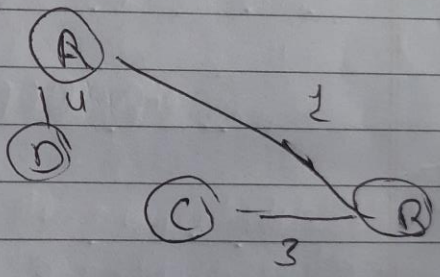


Soln

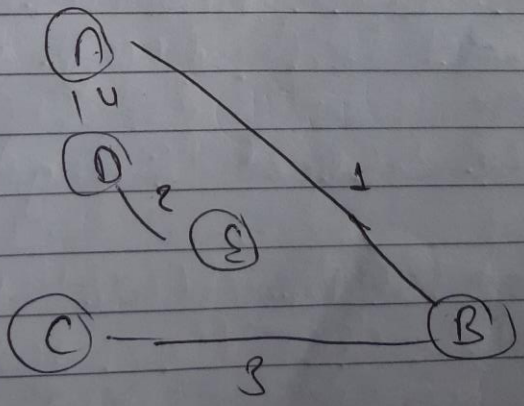
Step 1 ->



Step 2 ->

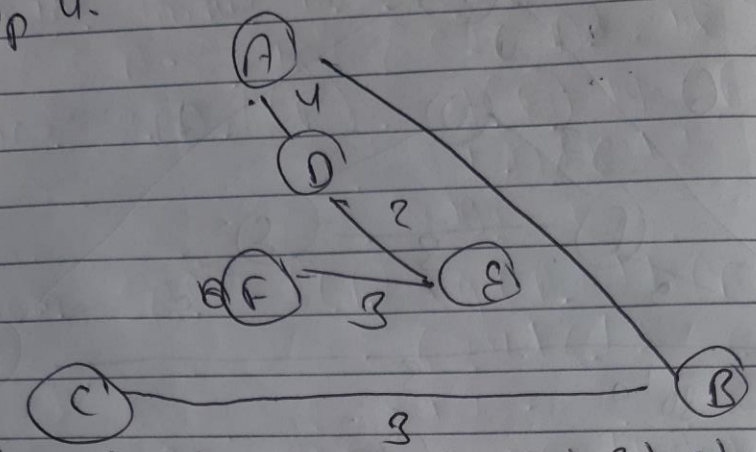


Step 3 ->



Date : / /

Step 4:



∴ The total weight = 4 + 2 + 3 + 3 + 1
= 13 #