

Assignment - 9

$S = \{$ choose paint color, choose paint type, choose wood type, purchase paint, purchase wood, paint wood, cut wood, assembly $\}$

1. Breadth-first search from I . Start at I .
2. Breadth-first search from I . Visit adjacent vertices D, F, H (Length=1).
3. Breadth-first search from I . Visit adjacent vertices C, B, G . (Length=2).
4. Breadth-first search from I . visit adjacent vertices A, E . (Length=3).

	v	T	known	driven	PV	v	T	known	driven	PV
1.	Home	F	0	0	0	Home	T	0	0	0
2.	Gas station	F	0	0	0	Gas S.	F	0	0	6
3.	City Park	F	0	0	0	City Park	F	0	0	5
4.	Grocery	F	0	0	0	Grocery	F	0	0	0
5.	Restaurant	F	0	0	0	Restaurant	F	0	0	15
6.	Post office	F	0	0	0	Post office	F	0	0	0
7.	UTD	F	0	0	0	UTD	F	0	0	20
8.	Stadium	F	0	0	0	Stadium	F	0	0	0
9.	Library	F	0	0	0	Library	F	0	0	0
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										

P - training set

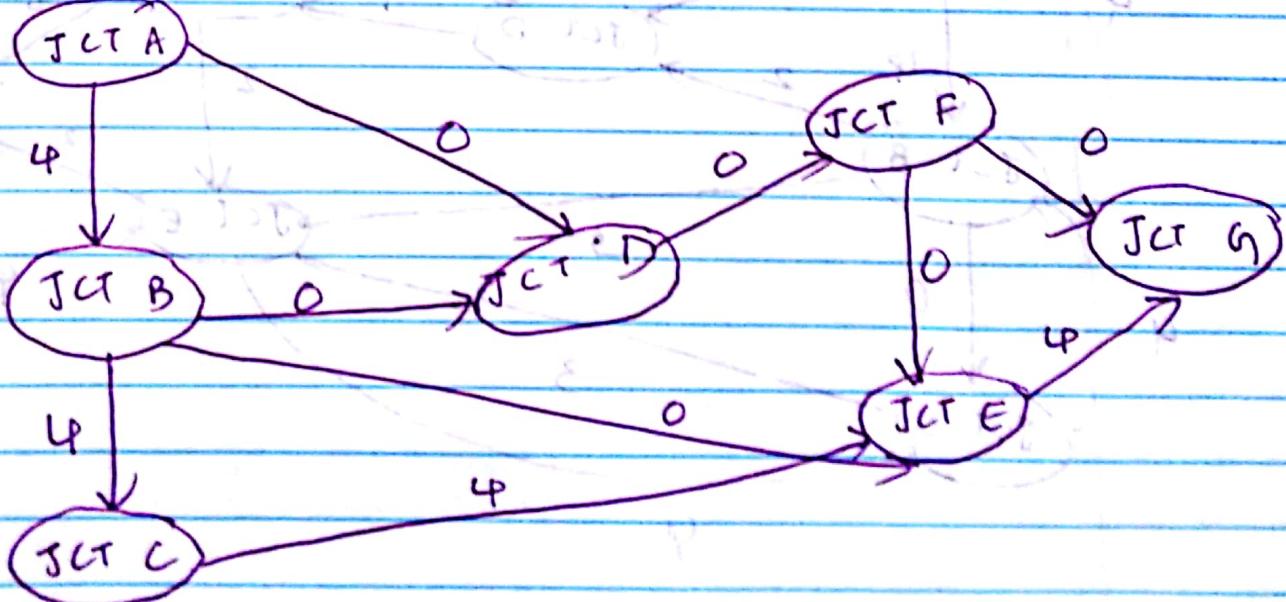
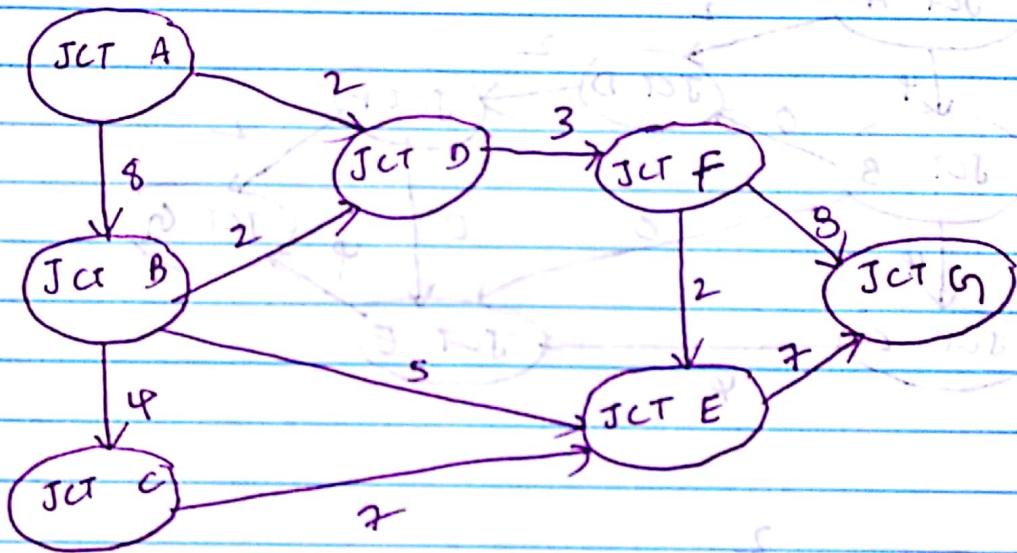
	Known	dv	pv		Known	dv	pv
Home	T	0	0	Home	T	0	0
Gas	F	6	Home	Gas	T	6	Home
City	T	5	Home	City	T	5	Home
Grocery	F	7	City Park	Grocery	F	7	City
Restaurant	F	15	Home	⇒ Restaurant	F	15	Home
Post office	F	∞	0	Post office	F	∞	0
UTD	F	20	Home	UTD	F	20	Home
Library	F	∞	0	Stadium	F	16	Gas
Stadium	F	∞	0	Library	F	∞	0

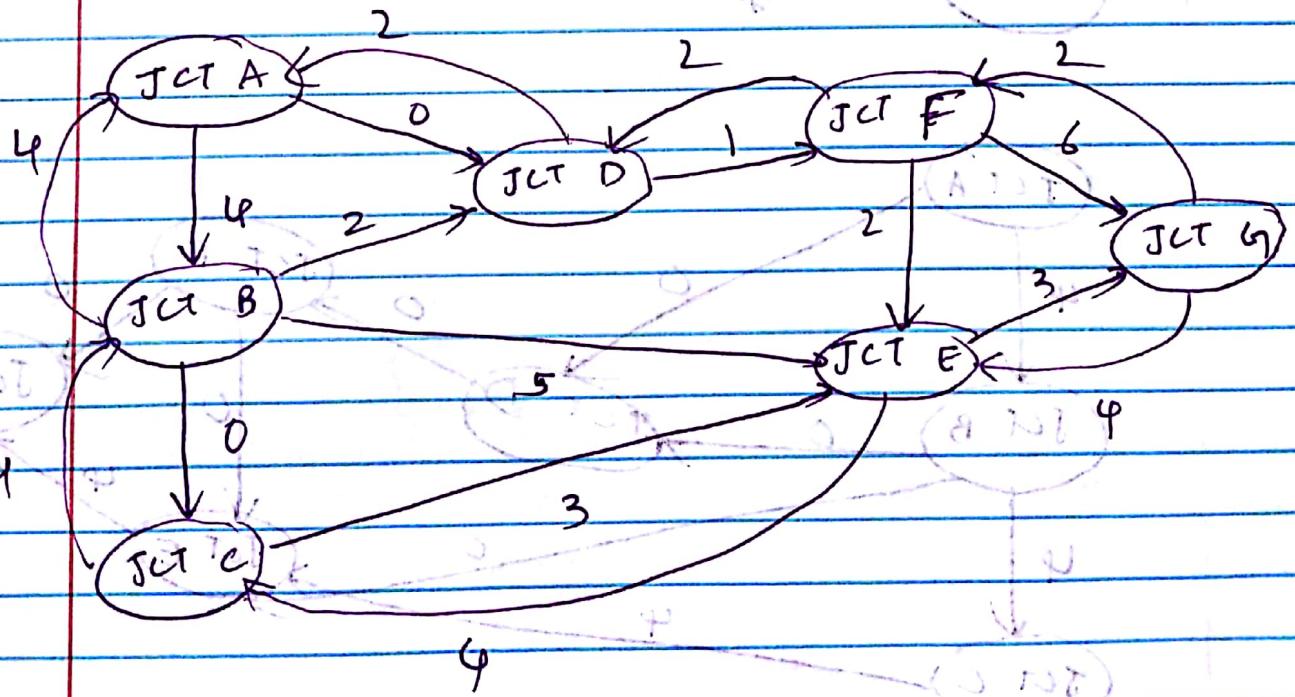
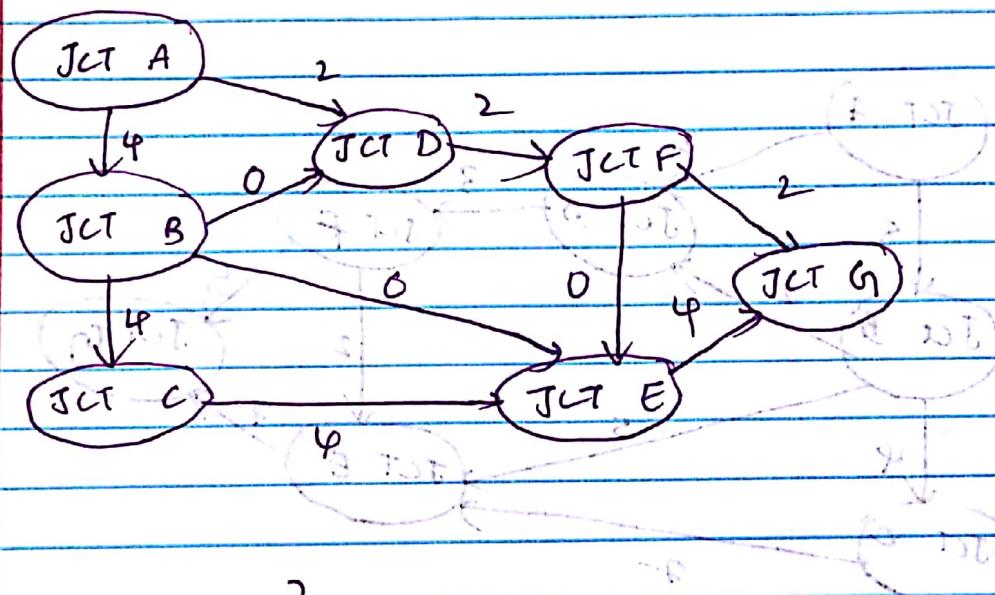
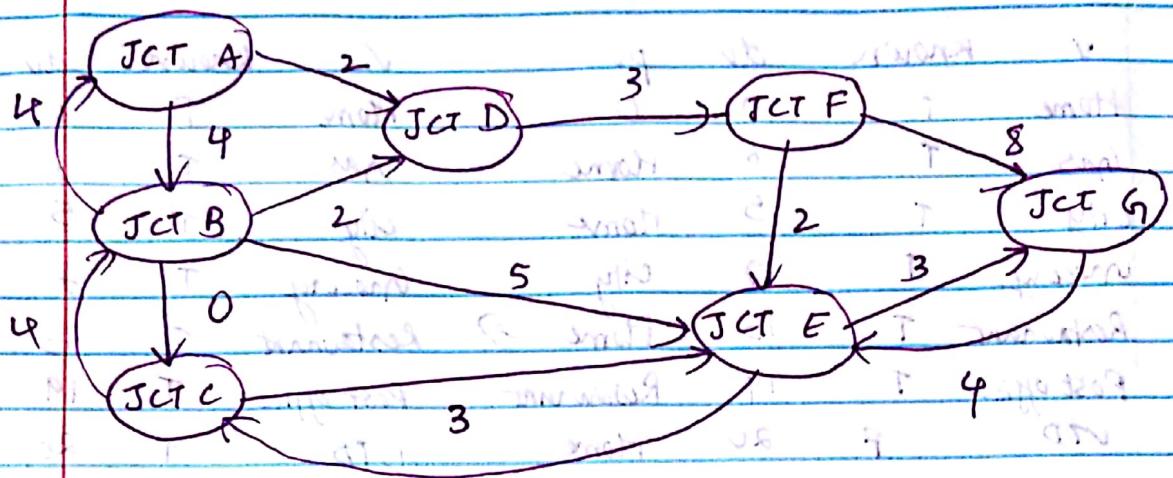
	Known	dv	pv		Known	dv	pv
Home	T	0	0	Home	T	0	0
Gas	T	6	Home	Gas	T	6	Home
City	T	5	Home	City	T	5	Home
Grocery	T	7	City	Grocery	T	7	City
Restaurant	F	15	Home	⇒ Restaurant	T	15	Home
Post	F	∞	0	Post office	T	19	Restaurant
UTD	F	20	Home	UTD	F	20	Home
Stadium	F	16	Gas	Stadium	F	16	Gas
Library	F	∞	0	Library	F	18	Restaurant

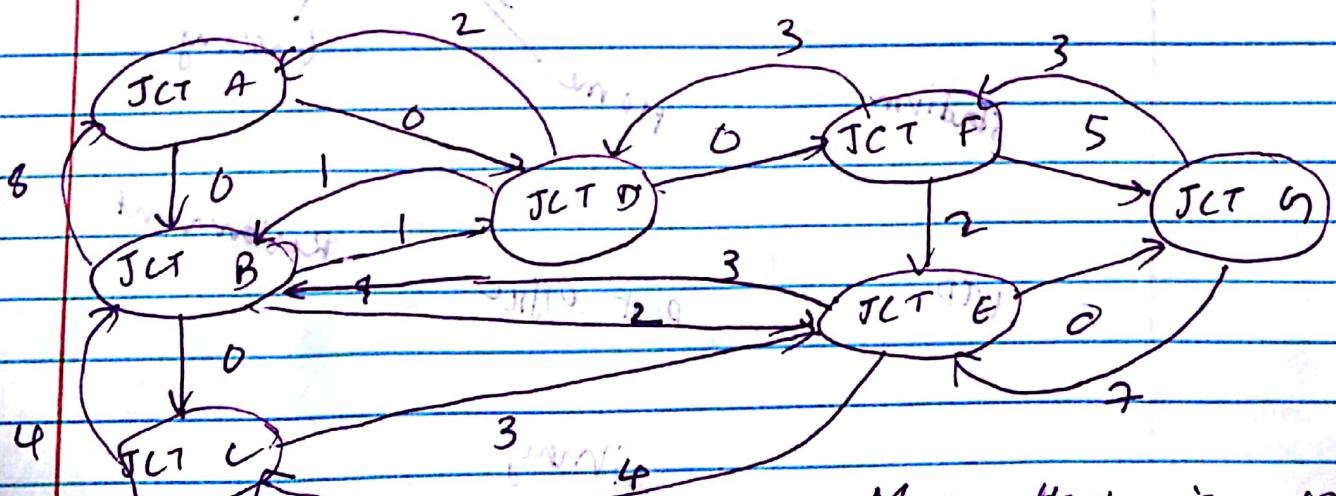
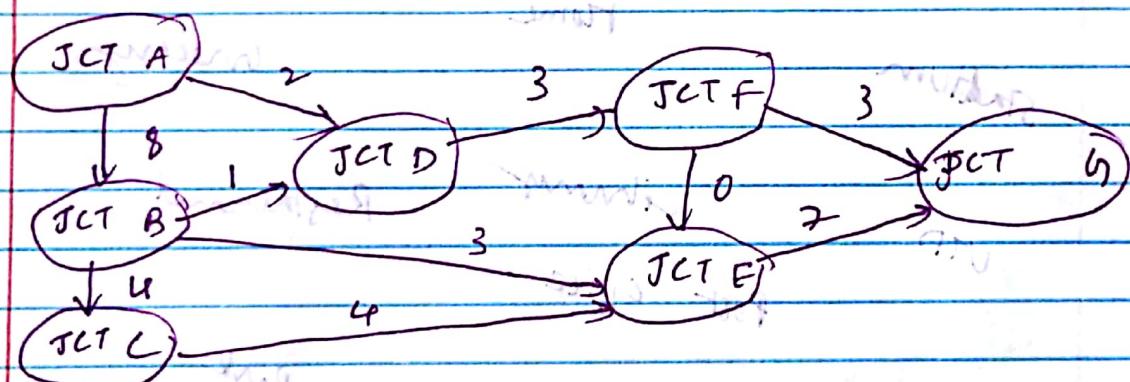
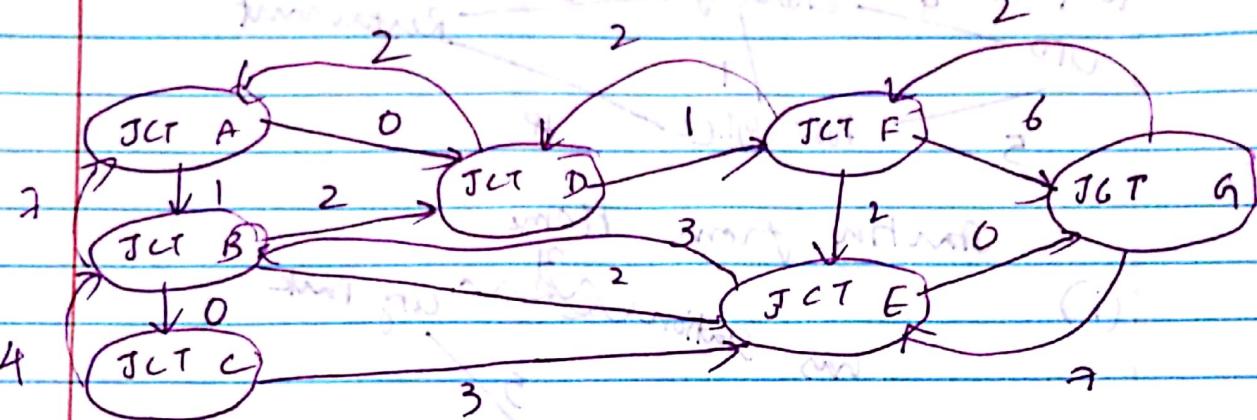
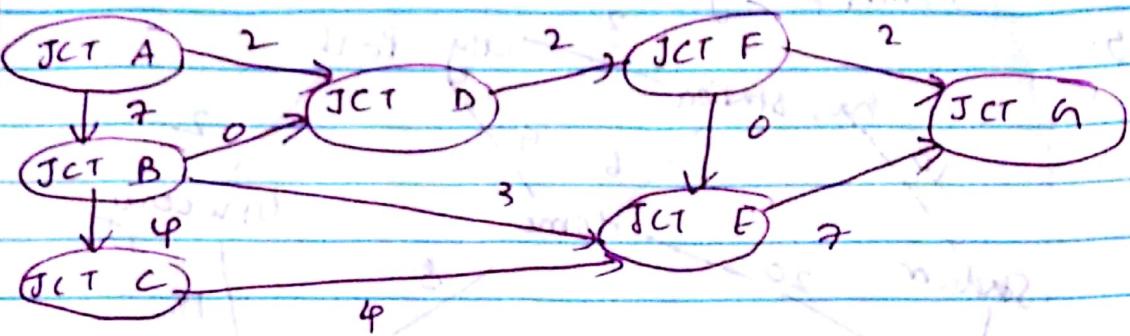
	Known	dv	pv		Known	dv	pv
Home	T	0	0	Home	T	0	0
Gas	T	6	Home	Gas	T	6	Home
City	T	5	Home	City	T	5	Home
Grocery	T	7	City	⇒ Grocery	T	7	City
Restaurant	T	15	Home	Restaurant	T	15	Home
Post office	F	19	Restaurant	Post office	F	19	Restaurant
UTD	F	20	Home	UTD	F	20	Home
Stadium	T	16	Gas	Stadium	T	16	Gas
Library	F	18	Restaurant	Library	T	18	Restaurant

	Known	dv	pv		Known	dv	pv
Home	T	0	0	Home	T	0	0
Gas	T	6	Home	Gas	T	6	Home
City	T	5	Home	City	T	5	Home
Grocery	T	7	City	Grocery	T	7	City
Restaurant	T	15	Home	Restaurant	T	15	Home
Post office	T	19	Restaurant	Post office	T	19	Restaurant
UTD	P	20	Home	UTD	T	20	Home
Stadium	T	16	Gas	Stadium	T	16	Gas
Library	T	18	Restaurant	Library	T	18	Restaurant

4.



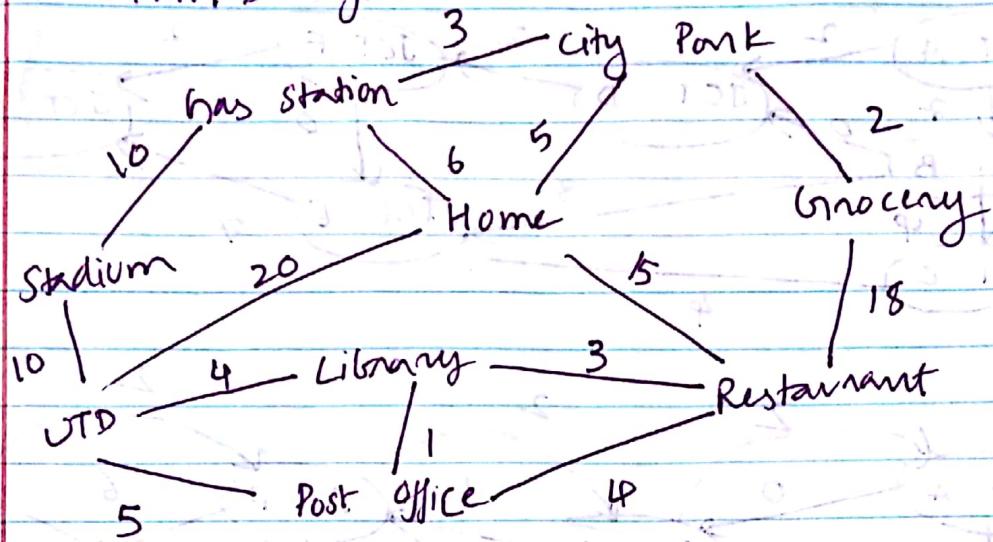




Max flow is 10.

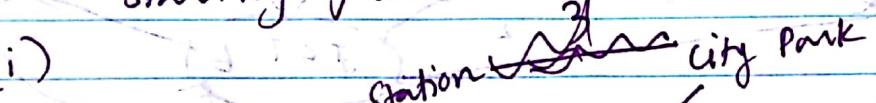
Prinim's Algorithm

5.

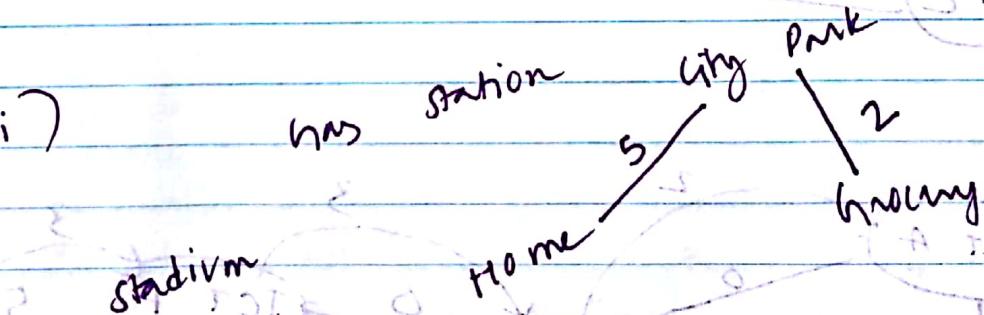


Starting from Home:

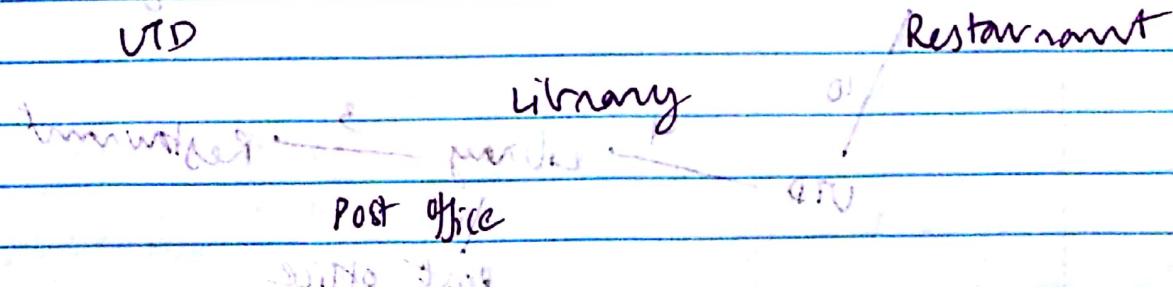
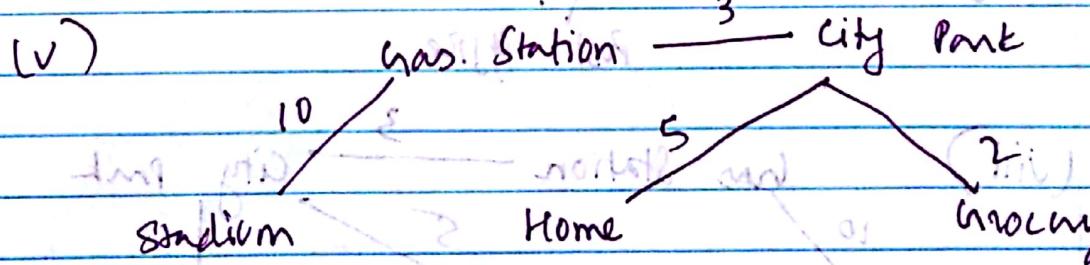
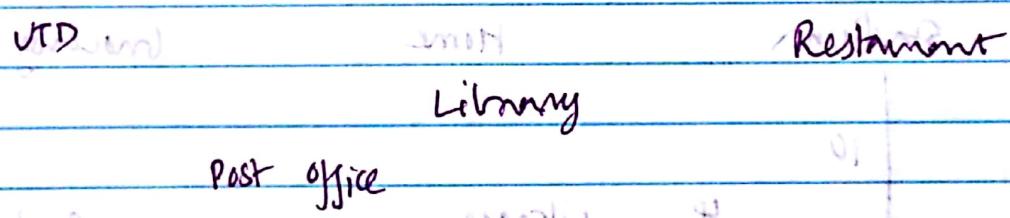
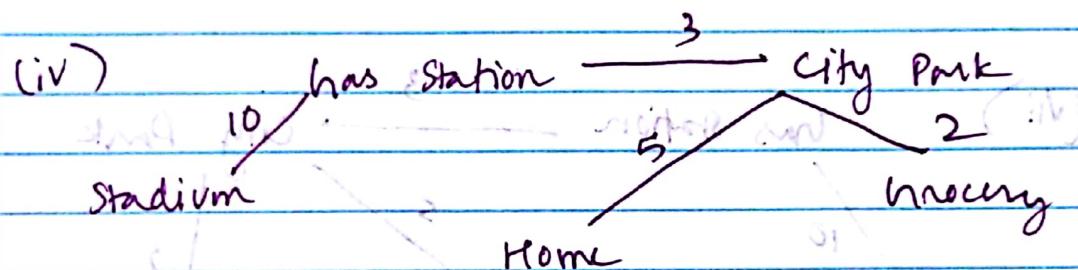
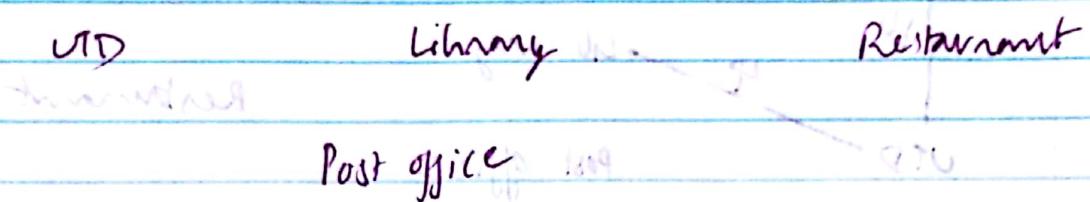
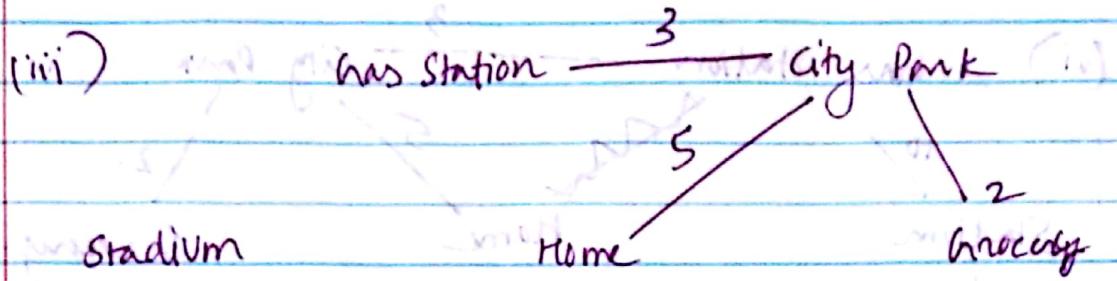
(i)

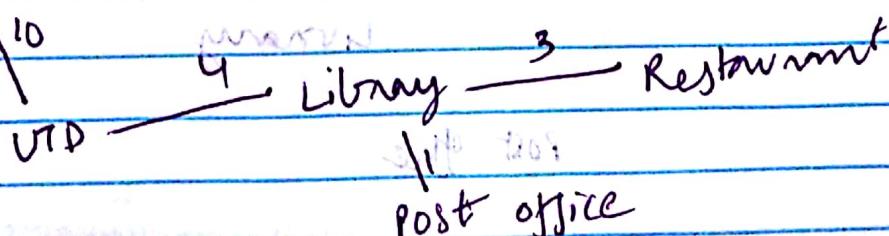
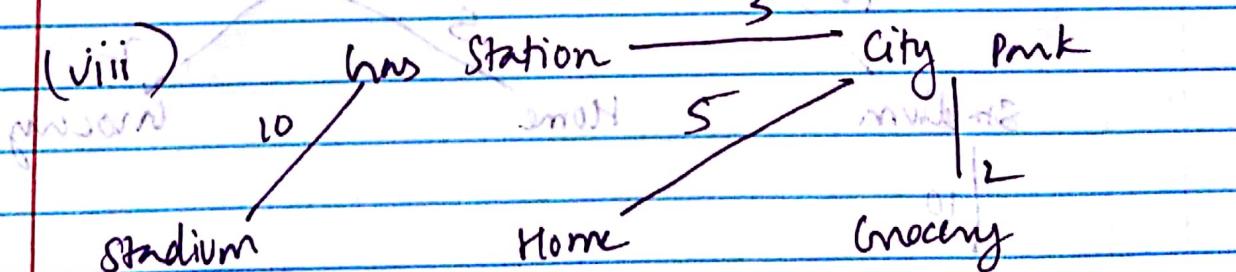
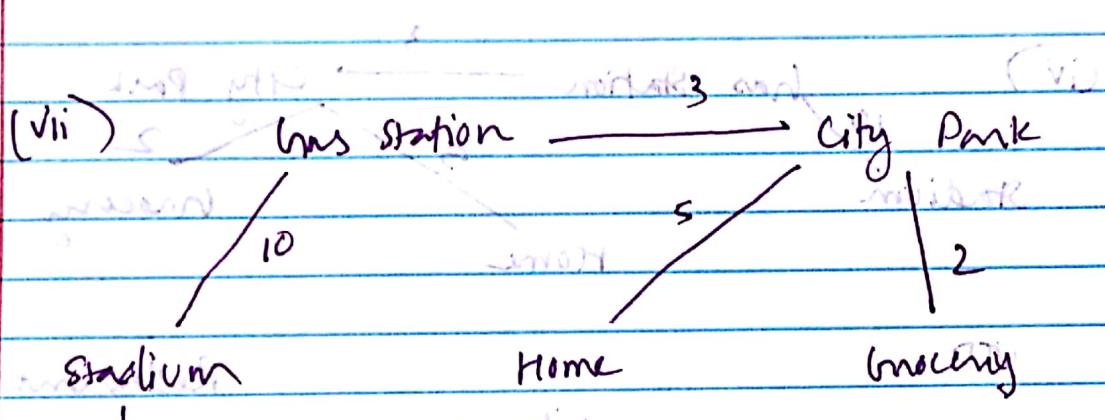
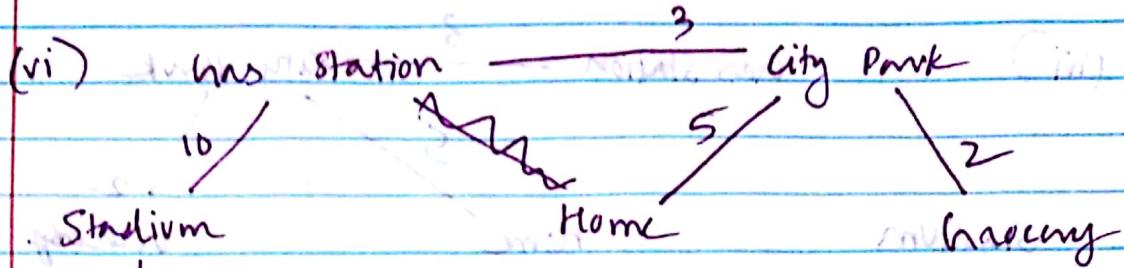


(ii)



Library





Kruskal's :

6.

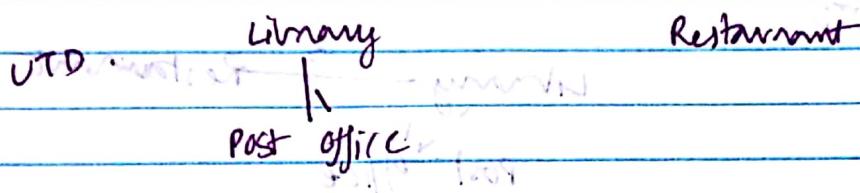
i) Gas station

Home

stadium

grocery

work



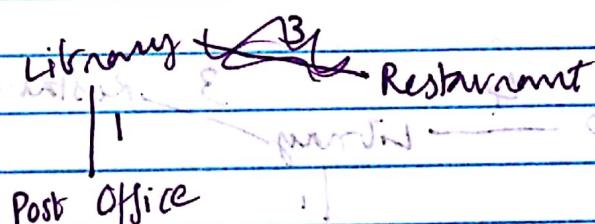
ii) Gas station

Home

stadium

grocery

UTD



iii)

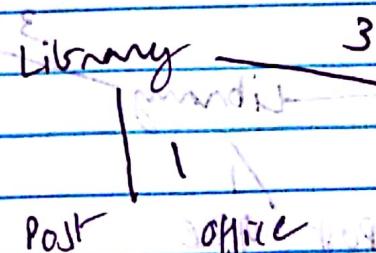
Gas station

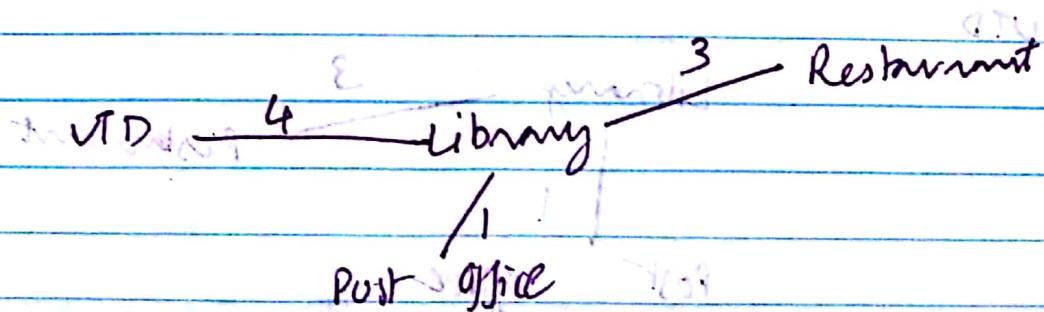
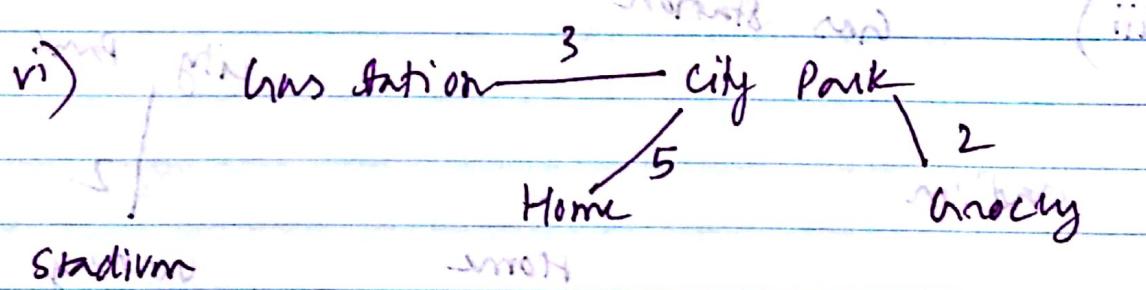
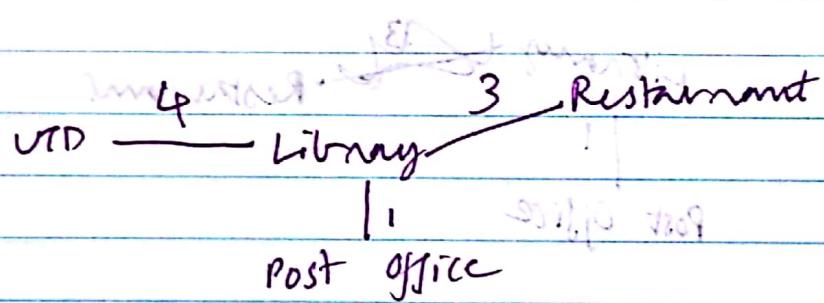
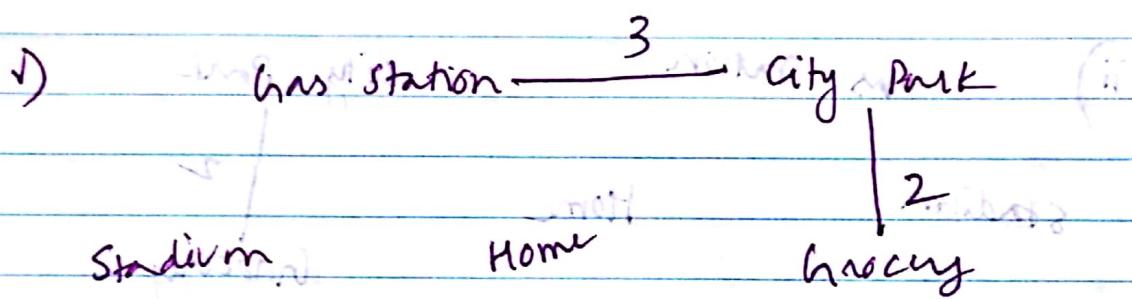
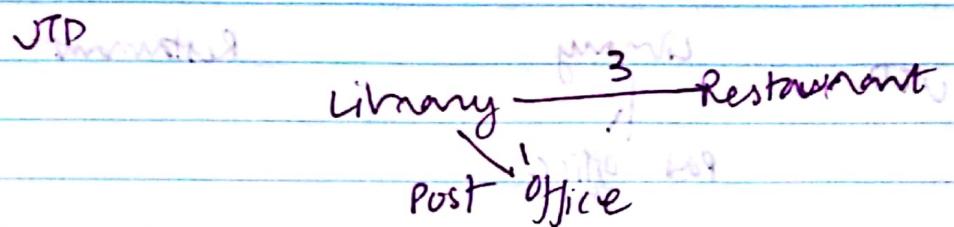
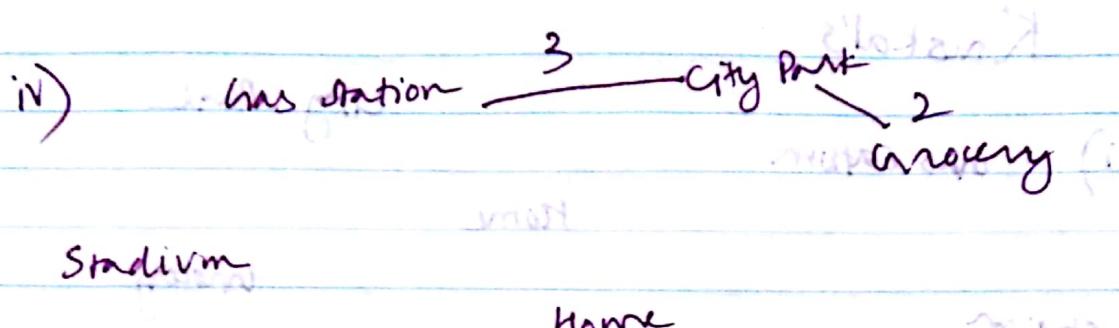
Home

stadium

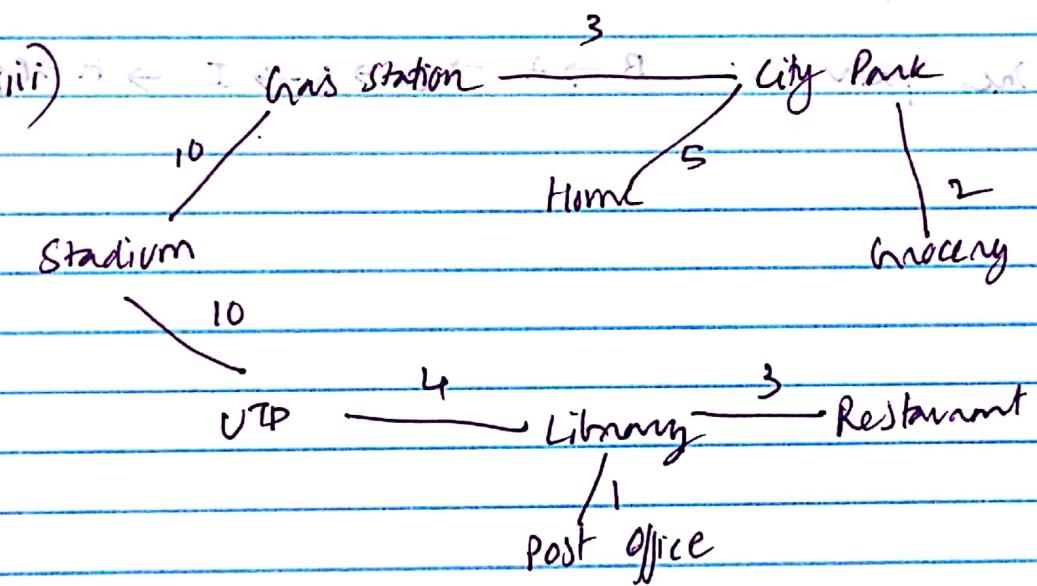
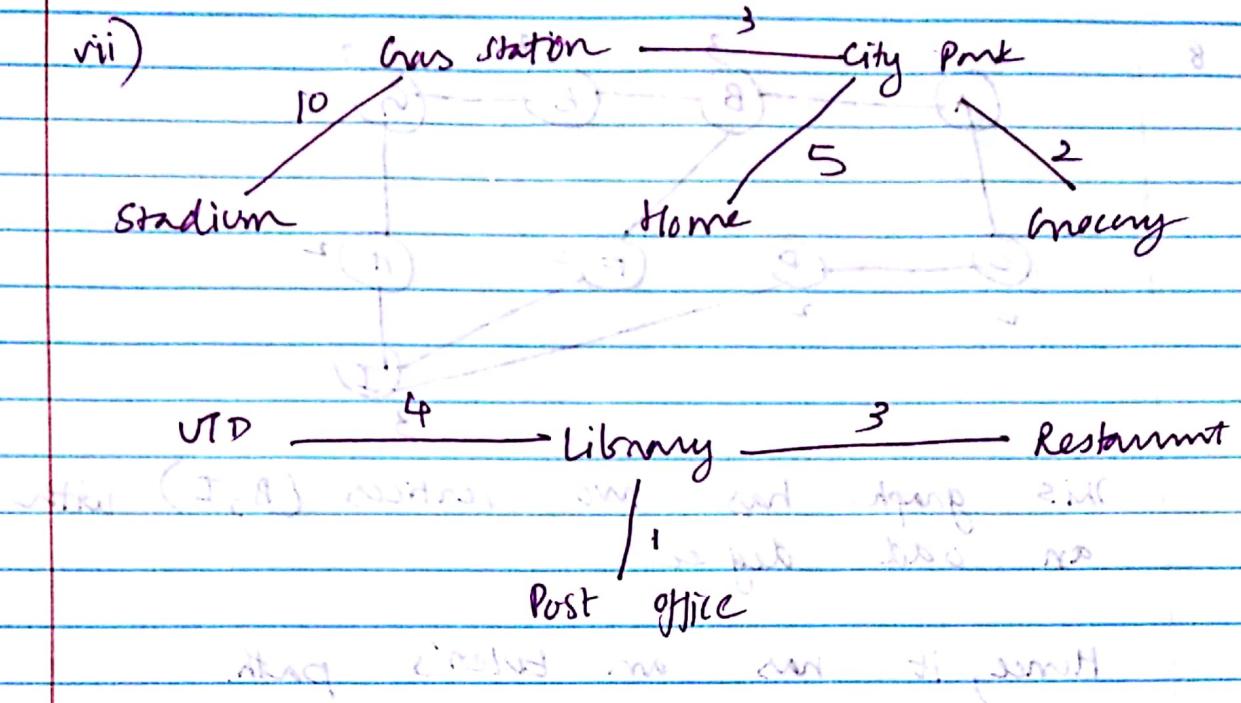
grocery

UTD

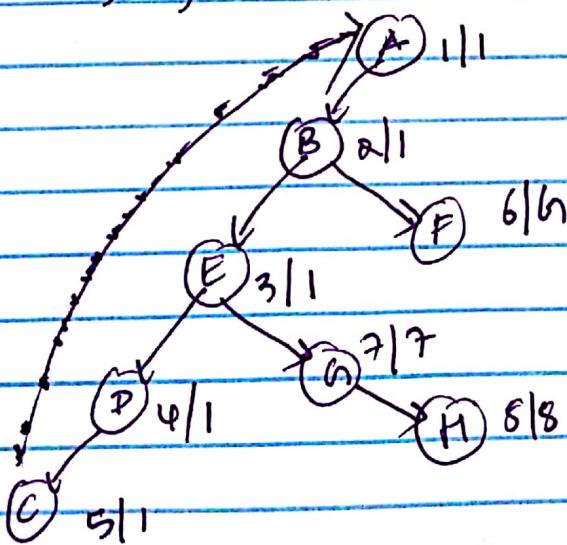




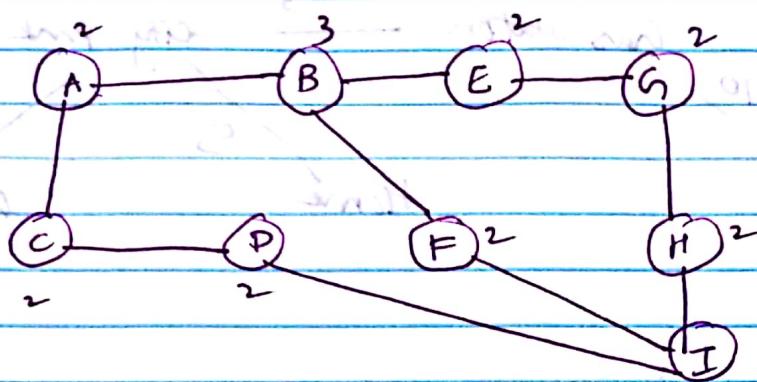
vii)



7. B, E, G → Articulation Points



8.



This graph has two vertices (B, I) with an odd degree.

Hence, it has an Euler's path.

The path is: $B \rightarrow A \rightarrow C \rightarrow D \rightarrow I \rightarrow H \rightarrow G \rightarrow E \rightarrow B \rightarrow F \rightarrow I$