

④

(ii)

Pradyumn

a tree is connected, acyclic thus has $n-1$ edges

$$2(n-1) = \text{sum of degs}$$

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$$K(u) = S(u) \quad \text{if } S(u) \geq n-2$$

If a graph has n vertices and $f(G) \geq n-1$, that graph will be connected and vertex connectivity = 1

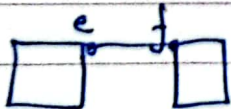
Same goes for n vertices and $f(G) \geq n-2$ so
vertex connectivity $= 2$

(iii) C_n has a diameter = $\frac{n}{2}$
diameter \bar{C}_n when $n \geq 5$

for $n \geq 5$ $\text{diam of } C_n \geq \text{diam}(C_n)$.
if $n < 5$ C_n is disconnected

Q2 If G has a bridge, removing bridge will disconnect the graph.

If the vertex attached to the bridge is removed, the bridge will be removed as well, disconnecting the graph.

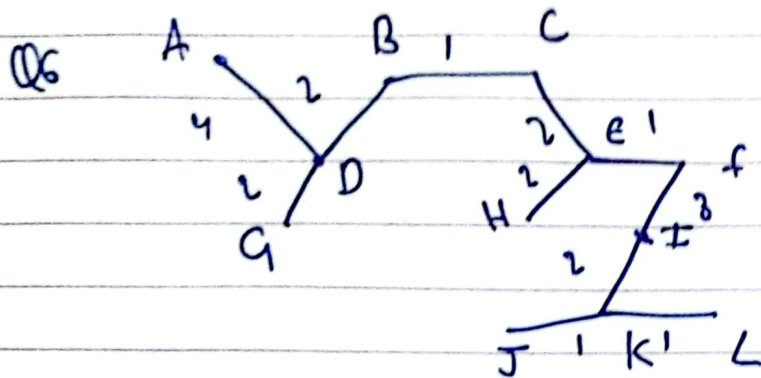


knowing ~~e~~ ^{or} ~~f~~ ^f ~~with~~ ^{with} ~~the~~ ^v

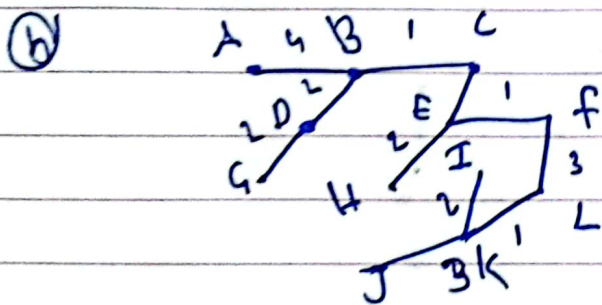
edges are at vertices

day / date;

Q5) 2000 trees, (kinhoff) through a Laplace adjacency matrix.



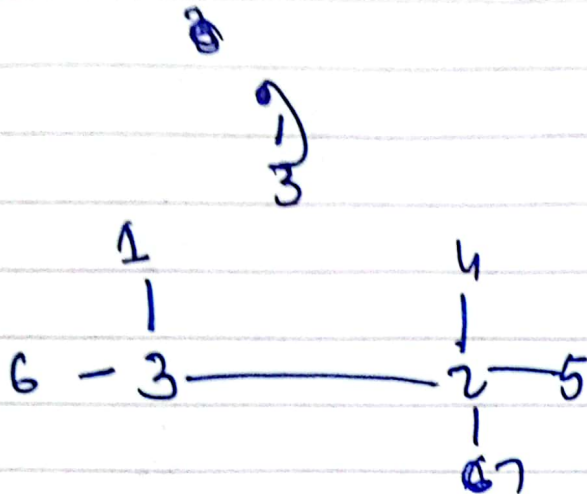
2
1
2
1
3
1
1
2
2
2
4
2


$$\begin{array}{r} 4 \\ 1 \\ 1 \\ 3 \\ 1 \\ 2 \\ 3 \\ 2 \\ 2 \\ 2 \\ 2 \\ \hline 13 \end{array}$$

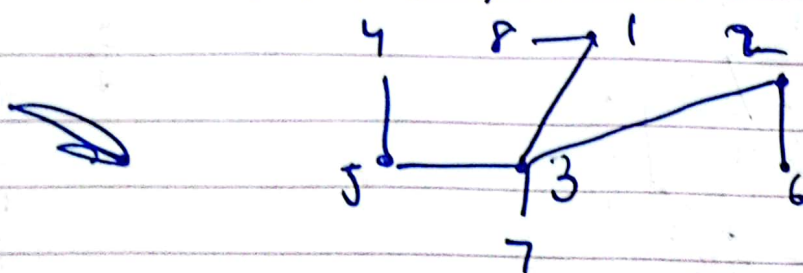
day / date:

Q7
(i)

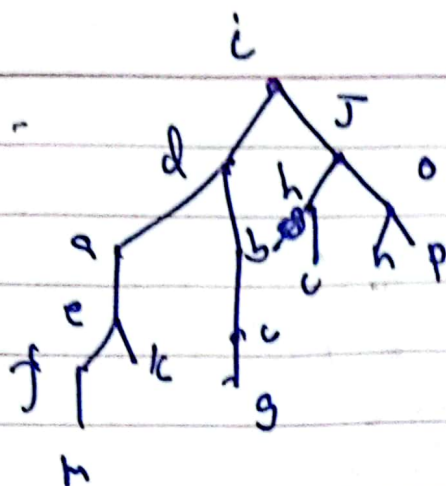
5, 4, 4, 3, 4, 2, 1, 4, 5, 6, 3, 7
G.N = 8



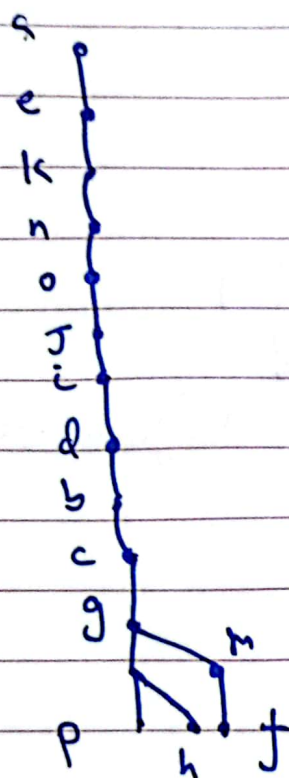
(ii) 5, 3, 4, 3, 3, 4, 5, 6, 2, 7, 3



Q8)

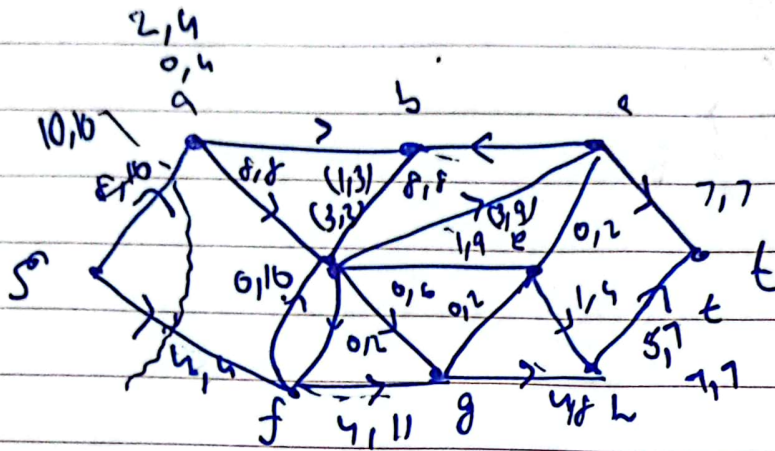


Q9)



Q10)

day / date:



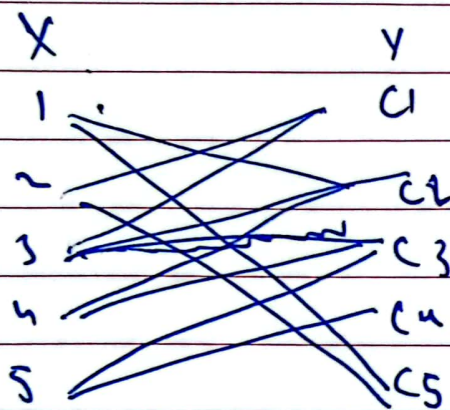
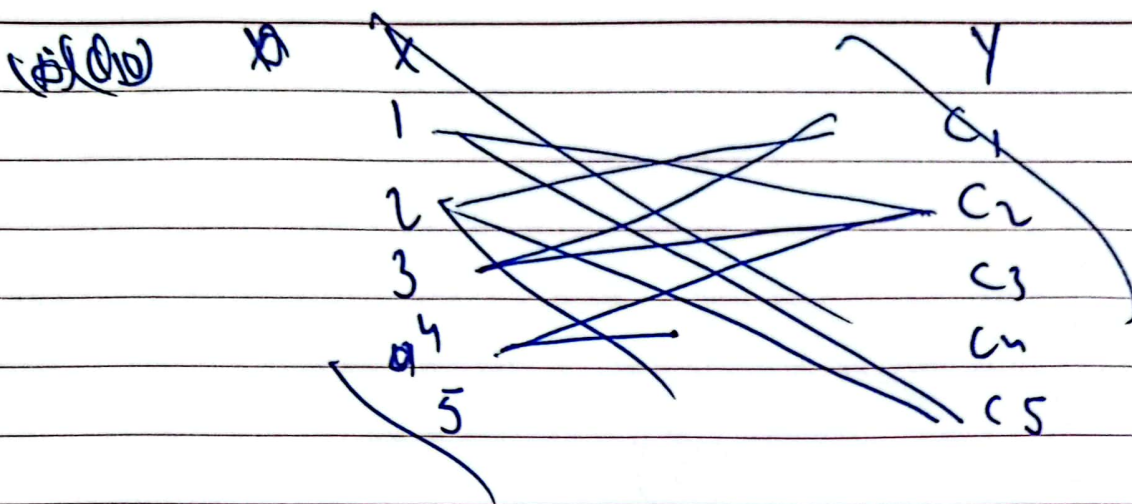
max flow = 14

min cut : ~~a, b, c, d~~ $P = \{s\}$
 ~~$P = \{s\}$~~

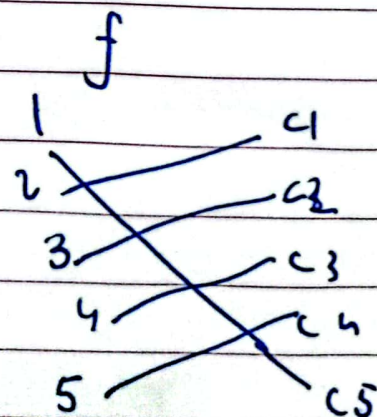
$$10 + 4 = \boxed{14}$$

edges = $s \rightarrow f$

day / date:



- (b) 2
(c) 2
(d) yes
(e) yes



Q11

(i)

No

a (1)

~~a~~

ac

bx

uy

vz

ay

5

13