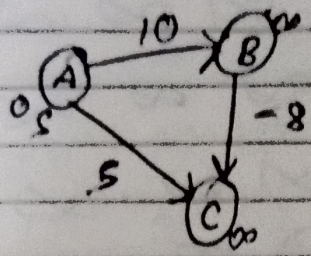
Date: / /
Page No.

(V-1) + (1) → Just to check -ve edge cycle

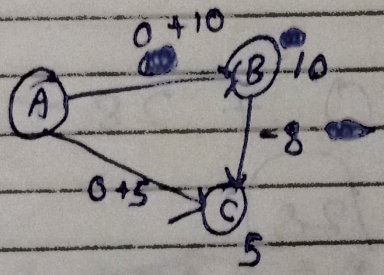
* Bellman Ford Algorithm :—

* Difference with Dijkstra's :—

- Relax every edge unlike Dijkstras, V-1 times

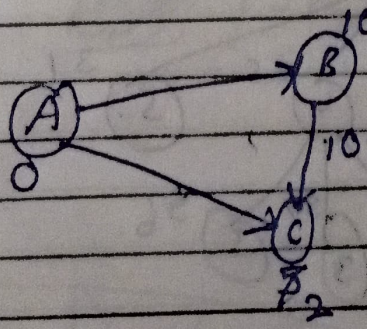


R_1 →

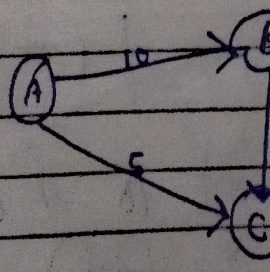


∞ - 8 is nothing thus cannot

R_2 →

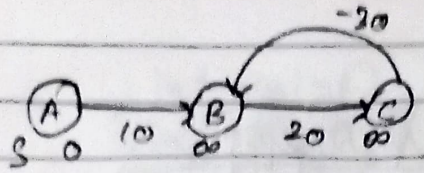


R_3 →

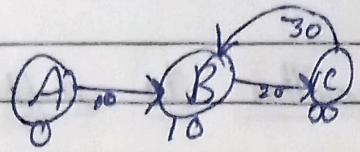


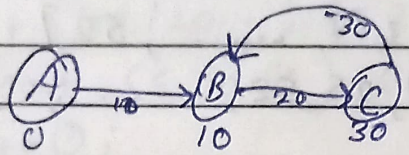
∴ No negative edge cycle

Date : / /
Page No.

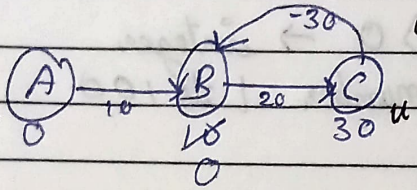
* 

V − 1 times
3 − 1 = 2 times

$R_1 \rightarrow$ 

$R_2 \rightarrow$ 

$u = 30$, $w(u,v) < 30$
$0 < 10$

$R_3 \rightarrow$ 

[negative edge cycle, as value of B will decline to $-\infty$]

* **Pseudo Code :—**

BellmanFord (G, V, E, S)
(G: graph, V: vertices, E: Edges, S: sources)

Step 1
for each vertex $v \in G$ do } O(V)
  dist[v] = ∞
  dist[source] = 0

Step 2
for i = 1 to |V| − 1
  for each edge (u, v) ∈ G
    Relax (u, v, w)

O(V · E)

Step 3
for each edge (u, v) ∈ G
  if (dist[u] + w(u, v) < dist[v])
    return "Graph contains negative weight cycle"
return distance