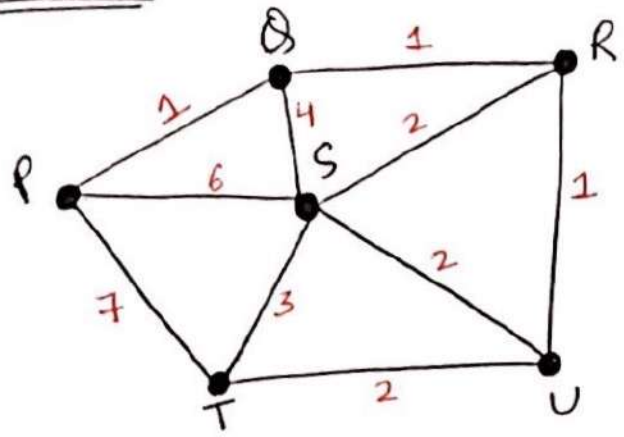
Question:

Assignment - 8



Find shortest path from P to U using shortest path algorithm.

Answer: ① Assign label (-, 0) to P

② Vertices adjacent to P are: Q, S & T.
All 3 are unlabelled.

∴ For Q, d + w(e) = 0 + 1 = (1) ✓

For S, d + w(e) = 0 + 6 = [6]

For T, d + w(e) = 0 + 7 = [7]

∴ Next labelled vertex will be Q with label (P, 1)

③ Unlabelled vertices adjacent to P are: S, T.

For S, d + w(e) = 0 + 6 = [6]

For T, d + w(e) = 0 + 7 = [7]

Unlabelled vertices adjacent to Q are: S, R

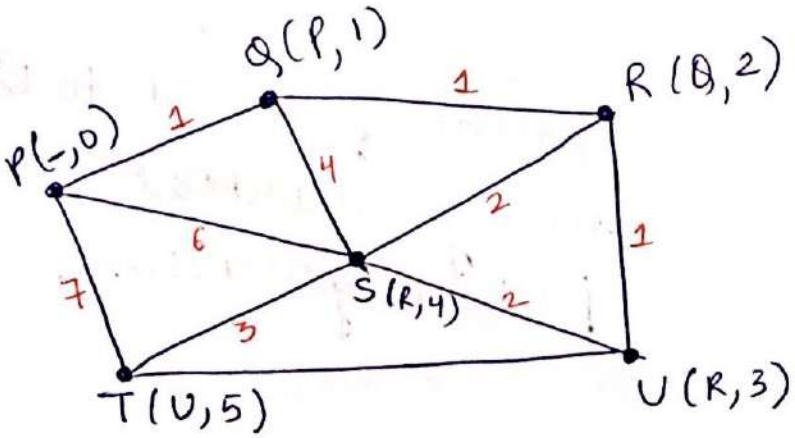
For S, d + w(e) = 1 + 4 = [5]

For R, d + w(e) = 1 + 1 = [2] ✓

∴ Next labelled vertex will be R

∴ R (Q, 2)

④ Continuing like this, we will get the following labels:



Hence, the shortest distance from P to U has weight 3.

The path is : P Q R U

Assignment-7
(solutions)

A-1) (a) ① tsyzvw
② tsxyzuvw
③ tsyzuvw
④ tsxyzvw

[All paths from t to w]

(b) ① wzut
② wxyt
③ wxyzut

[All paths from w to t]

(c) tsyzvwxyt (There can be other possibility also)

(d) No such cycles can be found.

A-2) (a) It is connected as underlying graph is connected.
It is not strongly connected [∵ no path b/w E and D]

(b) It is connected as underlying graph is connected.
It is strongly connected.

(c) It is disconnected [∵ ~~underl~~ underlying graph is not connected)

(d) It is connected because underlying graph is connected.
It is not strongly connected because no path from E to D.

A-3) It is not eulerian because we cannot find an eulerian trail.

It is hamiltonian because we can find a hamiltonian cycle i.e. abdca