

(1)

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Semester : 4th

Department : BScs

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Date :

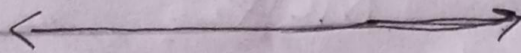
MCQs

- (i). A Vertex is a Junction where something takes place in graph.
- (ii) Nodes that share the same Edge are called Multiple/Parallel edge
- (iii) Two edges that are same incident on same node are called Adjacent edges.
- (iv) A Path (between) two nodes covering minimum number of nodes is called Simple Path
- (v) A closed path with more than three edges is called Cycle
- (vi) A node with zero in Degree is called Source Node
- (vii) A node with zero out degree is called Sink
- (viii) Isolated or Null graph is a graph with no pair of vertices having a common edge.

(2)

ix) Regular graph is a graph where each node is of the same degree.

x) Labeled graph is a graph where each edge is assigned a title.



(Question No: 2)

(i)

$D - Y * (F/G)$

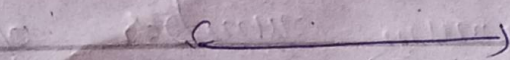
(Pre fix)

D - Y * (F/G)

- D Y * (F/G)

- D * Y (F / G)

- D * Y (F/G)



(Post fix)

D - Y * (F/G)

D - Y * (F/G)

D Y * (F/G) -

D Y (F / G) * -

D Y (F/G) * -

Ans

(3)

ii) Pre fix

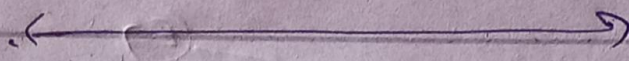
$$T/W^R + S \# M - Y^R$$

$$\underline{T/W^R} + \underline{S \# M - Y^R}$$

$$+ \underline{T/W^R} \quad \underline{S \# M - Y^R}$$

$$+ \underline{T/W^R} - \underline{S \# M} \quad \underline{Y^R}$$

$$+ \underline{T/W^R} \quad \underline{S \# M} \quad \underline{Y^R}$$



Post fix

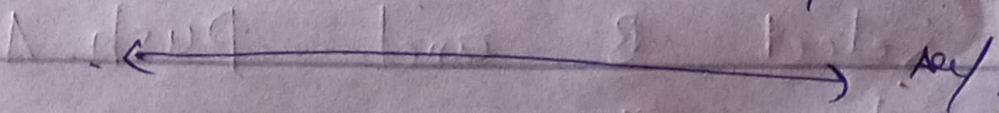
$$T/W^R + S \# M - Y^R$$

$$\underline{T/W^R} + S \# M - Y^R$$

$$\underline{T/W^R} \quad \underline{S \# M} - Y^R +$$

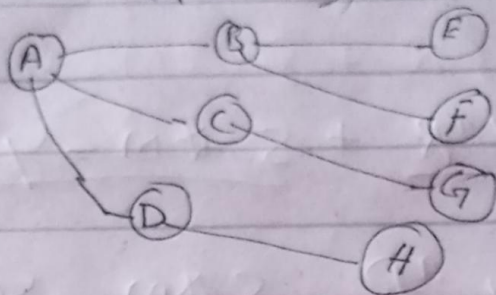
$$\underline{T/W^R} / \underline{S \# M} \quad \underline{Y^R} +$$

$$\underline{T/W^R} / \underline{S \# M} \quad \underline{Y^R} +$$



(4)

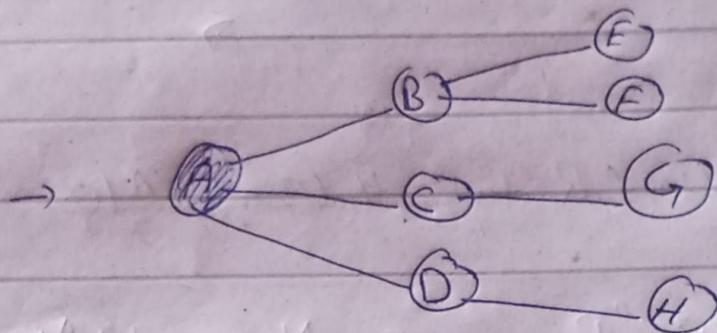
(QNO: 3)



i) Add root A to the output sequence

* Mark A visited

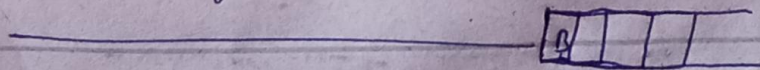
* A is in QWN.



output sequence

(2) * A is adjacent to B, C and D.

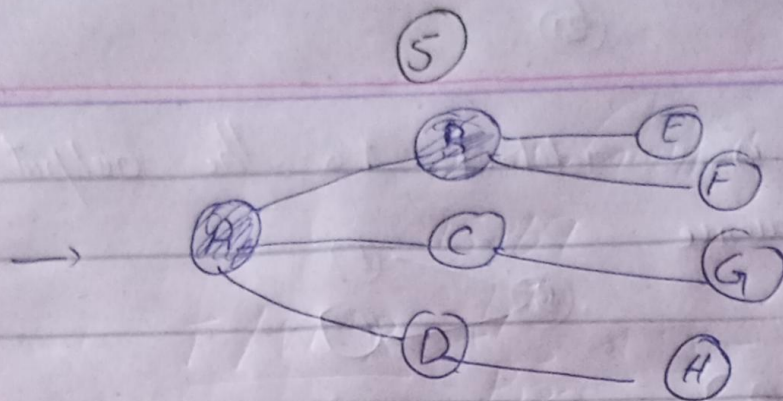
* select B and push A into queue



* Add B to the output

sequence

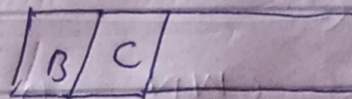
* Mark B visited



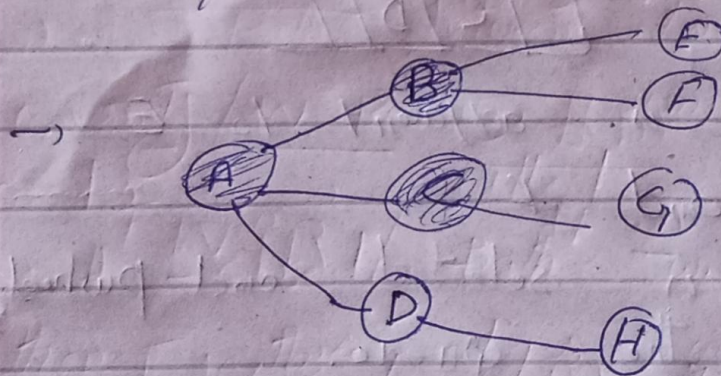
Output Sequence

A, B

- ③ * From CNV i.e 'A' the adjacent node is 'C'
- * 'C' is pushed into the queue.



- * 'C' is marked visited
- * 'C' is added to output sequence.



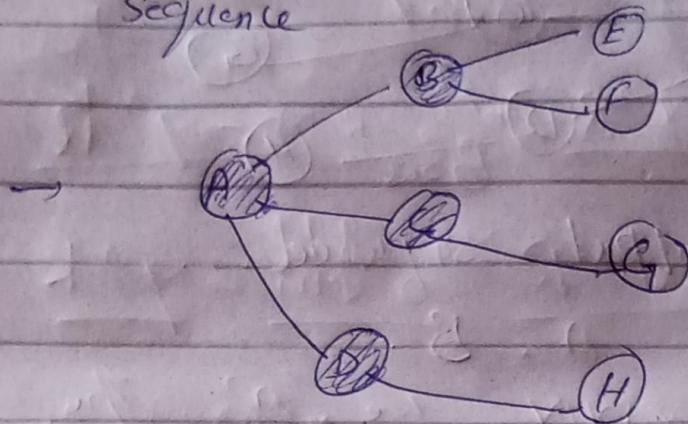
Output Sequence

A B C

- ④ * As 'D' is also adjacent to 'A'
- * D is pushed into the queue
- * D is marked visited.

(2)

* D is added to the output sequence



Output sequence

A, B, CD

Now CWN is updated

* 'B' is selected as new CWN

* B is popped from queue



(3) * B is adjacent to E

and F

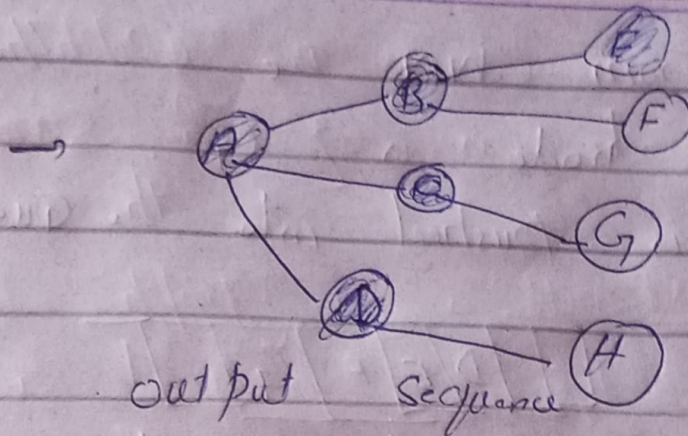
* E is selected and pushed into the queue.



* E is marked visited

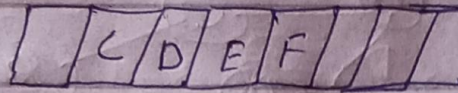
* 'F' is added to output sequence.

(7)

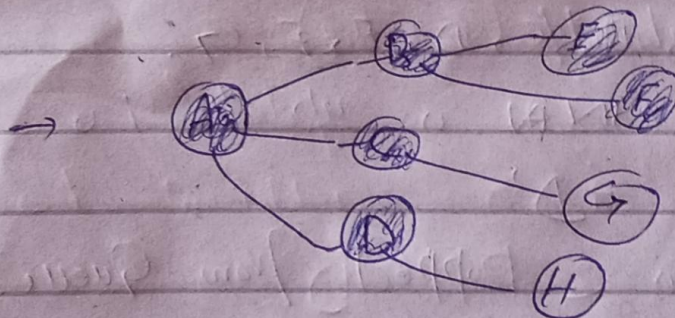


A, B, C, D, E

- (6) * from CWN i.e 'B' the adjacent node 'F' is selected
- * 'F' is pushed into the Queue

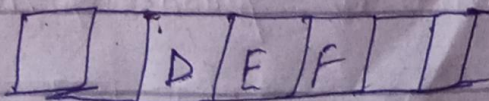


- * 'F' is marked visited
- * 'F' is added to output



A, B, C, D, E, F

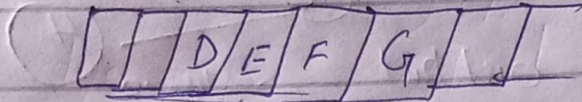
- * Now CWN is updated to 'C'
- * 'C' is popped from Queue



(8)

7) * From CWN i.e 'C' The adjacent node is 'G'

* G is pushed into the Queue

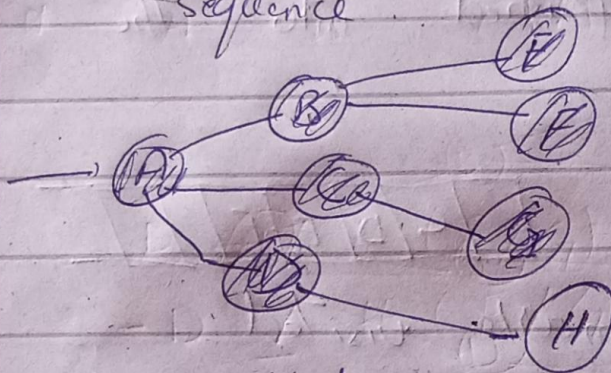


* G is marked visited

* G is added to output

* 'G' is added to output

sequence



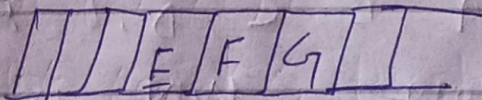
output sequence

A, B, C, D, E, F, G

* NOW CWN is updated to

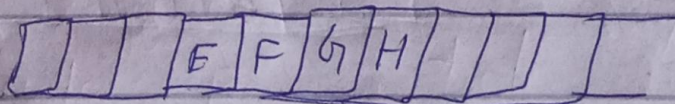
'D'

* 'D' is popped from Queue



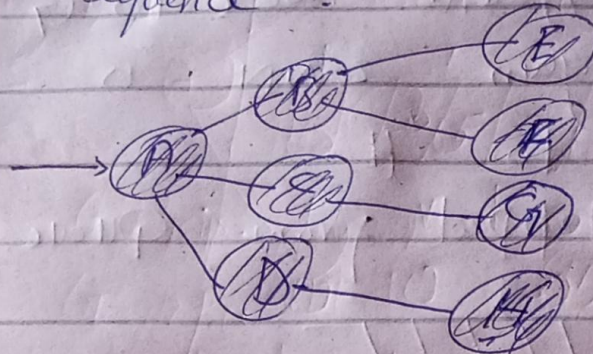
(8) * H is adjacent node to 'D'

* H is pushed to queue



(9)

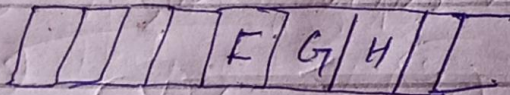
- * 'H' is mark visited
- * 'H' is added to output sequence



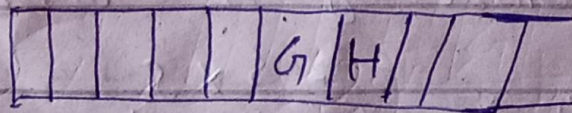
output sequence

A, B, C, D, E, F, G, H

- * Now CWN is updated to 'E'
- * 'E' is Popped from queue

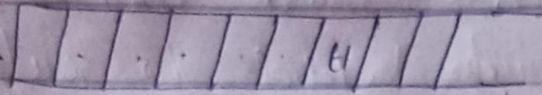


- * No adjacent node to 'H'
- * Now again CWN is updated to 'F'
- * 'F' is Popped from Queue



- * No adjacent node to 'F'
- * Now again CWN is updated to 'G'
- * 'G' is Popped from Queue

(10)

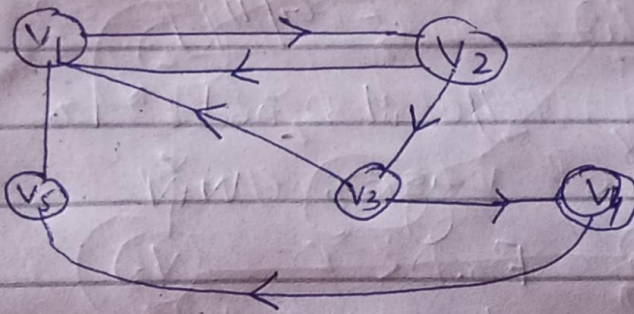


- * No adjacent node to 'G'
- * Now again LWN is updated to 'H'
- * 'H' is popped from Queue.



- * No adjacent node to 'H'
- * Queue is empty, so BFS stops

(Q: NO: 4)



Number of nodes = $m = 5$
 order of $A = m \times m$

	v_1	v_2	v_3	v_4	v_5	cut degree
v_1	0	1	0	0	1	2
v_2	1	0	1	0	0	2
v_3	1	0	0	1	0	2
v_4	0	0	0	0	1	1
v_5	0	0	0	0	0	0
Indegree	2	1	1	1	2	(7)

(11)

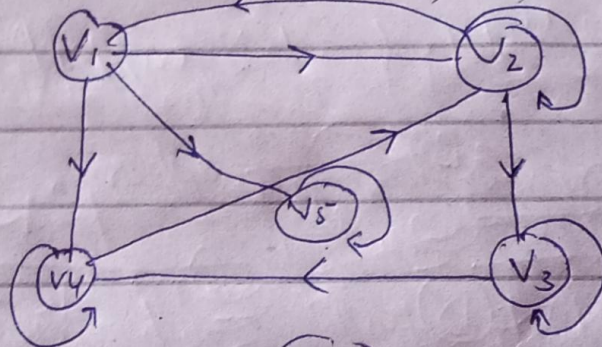
(Q No: 5)

$$A = \begin{bmatrix} 0 & 1 & 0 & 1 & 1 \\ 1 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

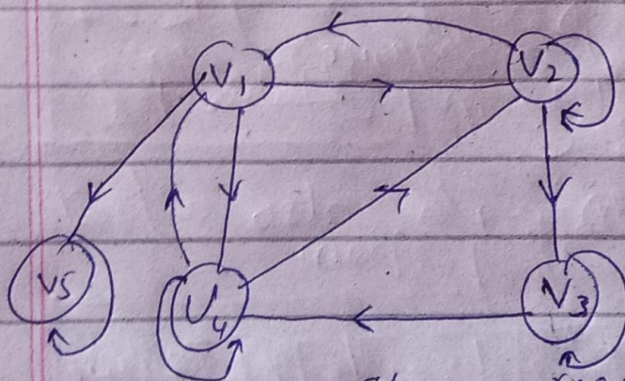
As order of $A = m \times m$
 $= 5 \times 5$
 $= 25$

NO nodes of nodes = 5

Let's the nodes be V_1, V_2, V_3, V_4, V_5



OR



The required graph