Question # 1

Fill in the blanks.

Ans:-

1) Vertex
2) Multiple / parallel Edge
3) Adjacent edger
4) Simple path
5) Cycle
6) Source Node
7 Sink
8) Isolated or Null grup
9) Regular graph
10 Labeled graph.

Question # 2

Convert the following from In-fix to pre-fix and post-fix Notation?

<i> D-Y * (F/G)

Pre-fix	Post-fix
D-Y * (F/G)	D-Y * (F/G)
-D Y * (F/G)	DY * (F/G)
-D*Y (F/G)	DY (F/G) *-
- D*Y (F/G)	DY (FG/) *-

(ii) T/W ^R+S*M-Y^K

Pre-fix

T/W ^R + S*M-Y^K

+T/W^R S*M-Y^K

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+/TW^R - S * M Y^K

+/T^WR ÷ * S M Y K

Post Fix

T/W ^R +S*M-Y^K

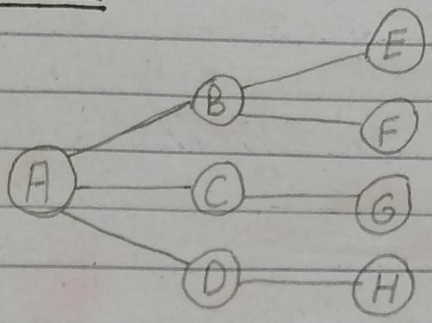
T/W^R S*M -Y^K +

TW^R/S * M Y^K - +

TWR^/ SM *. YK^ -+

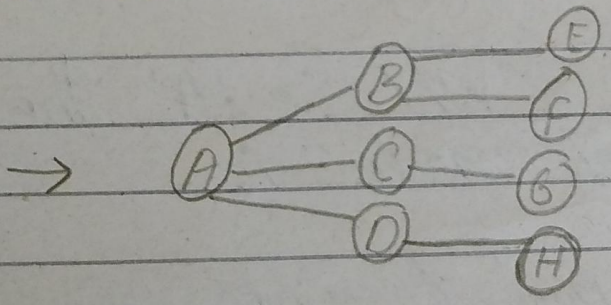
Question No 3

ANSWER



(i) Add root A to the output Sequence.

* Mark A visited
* A is CWN



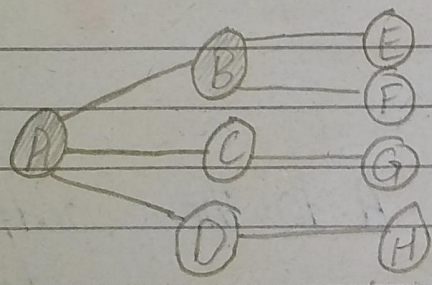
out put Sequence
A

(ii) A is adjecent to B, C and D

* Select B and push it into queue.

| B | | | | |

* Add B to the output Sequence.
* Match B visited.



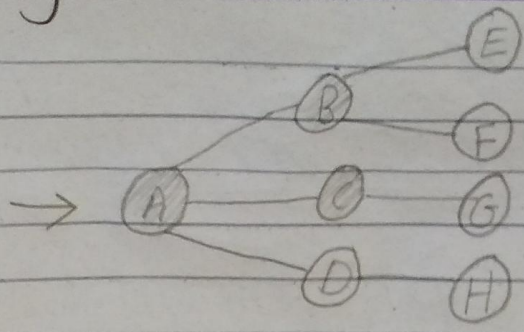
output Sequence
A, B

3) * from CWN i.e 'A' the adjecent node is

* 'C' is pushed into Queue.

| B | C | | | |

* 'C' is marked visited.
* 'C' is added to output Sequence

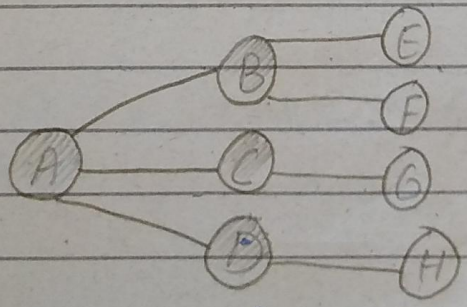


output Sequence A, B, C

(4) As 'D' is also adjecent to 'A'

B	C	D

* D is marked visited
* D is added to the output sequence.



Output Sequence A, B, C, D

* New CWN is updated
* 'B' is slected as new CWN
* 'B' is popped from Queue

	C	D	I

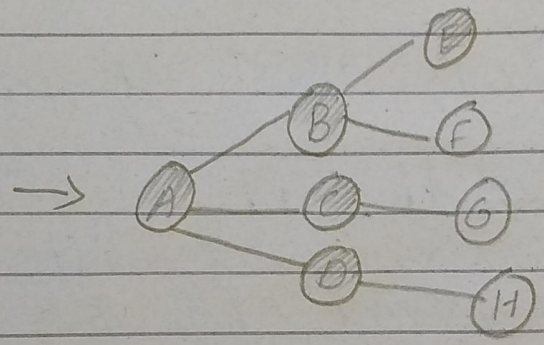
5) B is adjecent to E & F

* E is selected and pushed into the Queue

C	D	E

* E is marked visited.

* E is added to output sequence.



Output Sequence
A, B, C, D, E

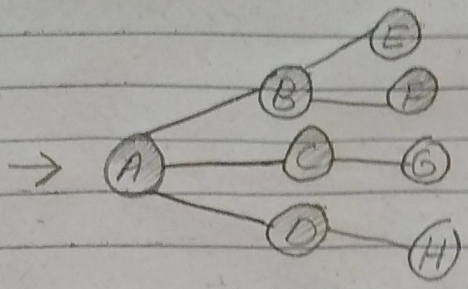
(6) From CWN i.e 'B' the adjecent node of 'F' is selected.

* 'F' is pushed into the queue

C	D	E	F

* 'F' is marked visited

* 'F' is added to output sequence.



output Sequence

A, B, C, D, E, F

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

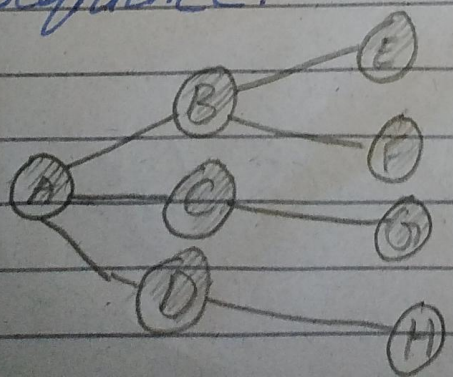
| | | D | E | F | | |

(7) From CWN i.e 'C' the adjecent node is 'G'

* G is pushed into the Queue

| | | D | E | F | G | |

* 'G' is marked visited
* 'G' is added to output Sequence.



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

* Now CWN is updated to 'D'

* 'D' is popped from Queue.

		E	F	G	

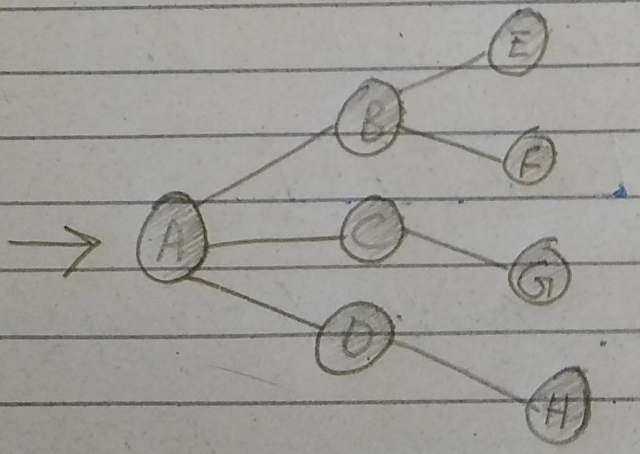
3) 'H' is adject node to 'D'

* 'H' is pushed Queue.

		E	F	G	H	

* 'H' is marked visited

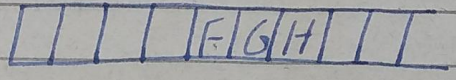
* 'H' is added to output Sequence



O.S:-

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

* Now CWN is updated to 'E'
* 'E' is pushed from Queue.

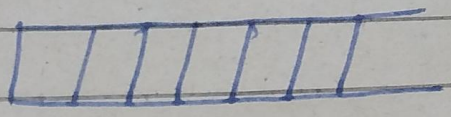


* NO adjecent Node to 'H'
* Now again cwn is updated to 'F'.
* F is popped from Queue

* NO adject to 'F'
* Now again cwn is updated to 'G'
* 'G' is Popped from Queue.

* NO adjecent to G
* Now cwn is updated to 'H'

'H' is popped from Queue

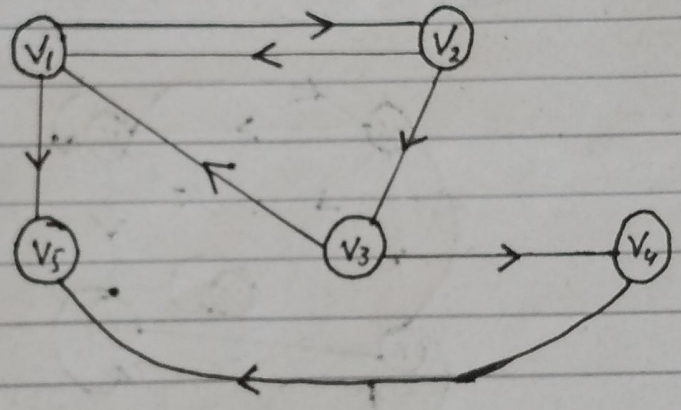


★ NO adjacent node to 'H'

★ Queue is empty So BFS is Stop.

Question # 4

Answer



Number of Node $m = 5$

order of $A = m \times m$

$= 5 \times 5$

$A =$

	V_1	V_2	V_3	V_4	V_5	out 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
In degree	2	1	1	1	2	(7)

Questio 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

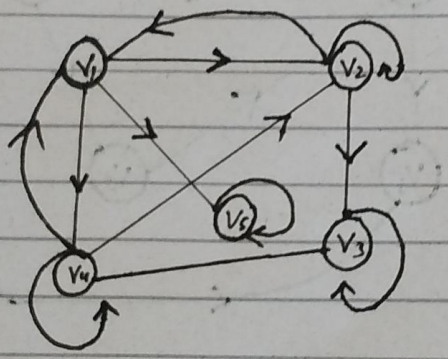
Order of $A = m \times m$

$= 5 \times 5$

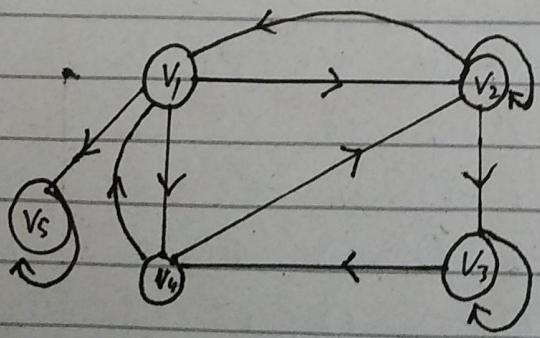
$= 25$

So No of Node = 5

lets the noder be $V_1, V_2, V_3, V_4, {}^{\&}V_5$



OR



The required graph....