Question 1 — 1 / 1 point

Given a graph represented in the form of linked-list, please choose the adjacency matrix of this graph:

- $v_1 \rightarrow [v_2, v_4, v_6]$
- $v_2 \rightarrow [v_1, v_3, v_5, v_6]$
- $v_3 \rightarrow [v_2]$
- $v_4 \rightarrow [v_1]$
- $v_5 \rightarrow [v_2, v_6]$
- $v_6 \rightarrow [v_1, v_2, v_5]$

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

$v_5 \rightarrow [v_2, v_6]$

- $v_6 \rightarrow [v_1, v_2, v_5]$

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

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

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

None of them is correct.

Question 2 — 1 / 1 point

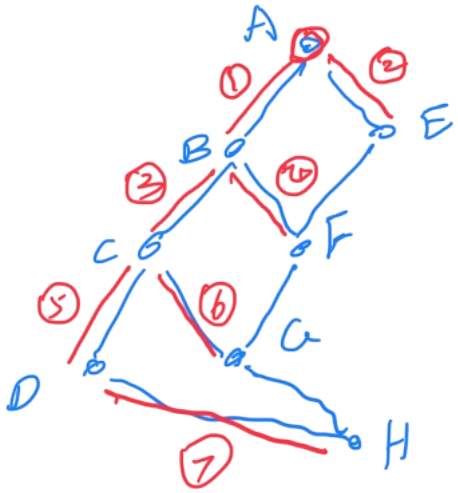
Given an undirected graph G = (V,E), V = {A,B,C,D,E,F,G,H}, E = {(A,B),(B,C),(C,D),(A,E),(B,F),(C,G),(D,H),(E,F),(F,G),(G,H)}, which of the following sequence is **BFS** sequence **starting from A**? Here we assume the vertices are explored in lexicographic order.

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

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

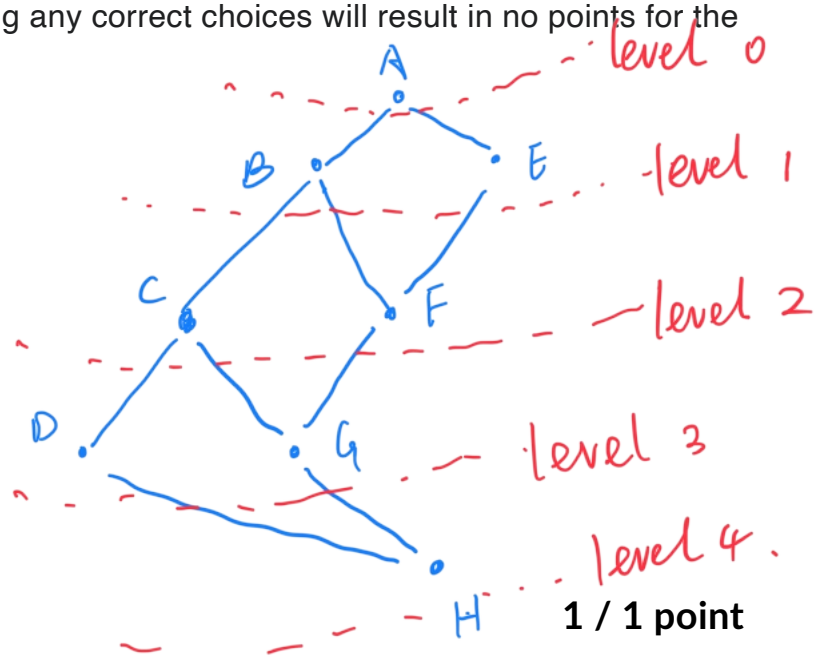
A, B, E, C, F, D, G, H

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



Question 3 — 1 / 1 point

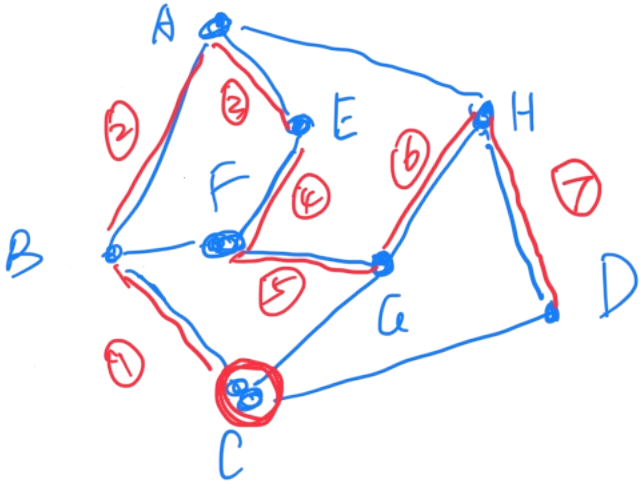
Given an undirected graph G = (V,E), V = {A,B,C,D,E,F,G,H}, E = {(A,B),(B,C),(C,D),(A,E),(B,F),(C,G),(D,H),(E,F),(F,G),(G,H)}, which of the following sequence(s) is/are valid **BFS** sequence(s) starting from A? Note that it's not necessary to follow lexicographical order. Note that there may be multiple correct answers. Select all that apply. Missing any correct choices will result in no points for the question.



- [x] A, E, B, F, C, G, D, H
- [x] A, B, E, F, C, D, G, H
- [ ] A, E, B, C, F, G, H, D
- [x] A, B, E, C, F, D, G, H
- [ ] A, B, C, D, E, F, G, H

Question 4 — 1 / 1 point

Given an undirected graph G = (V,E), V = {A,B,C,D,E,F,G,H}, E = {(A,B),(B,C),(C,D),(A,E),(A,H), (B,F),(C,G),(D,H),(E,F),(F,G),(G,H)}, which of the following sequence is the **DFS** sequence **starting from vertex C**? Here we assume the vertices are explored in lexicographic order.



- [ ] C, D, G, A, B, H, F, E
- [ ] C, G, H, A, B, F, E, D
- [ ] C, B, H, A, B, F, E, D
- [x] C, B, A, E, F, G, H, D

- ○ C, B, A, E, F, G, H, D

Question 5 — 1 / 1 point

Given an undirected graph G = (V,E), V = {A,B,C,D,E,F,G,H}, E = {(A,B),(B,C),(C,D),(A,E),(A,H), (B,F),(C,G),(D,H),(E,F),(F,G),(G,H)}, which of the following sequence is a valid **DFS** sequence? Note that it's not necessary to follow lexicographical order. Note that there may be multiple correct answers. Select all that apply. Missing any correct choices will result in no points for the question.

- ☐ D, H, A, E, B, F, C, G
- ☑ C, G, H, A, B, F, E, D
- ☐ C, D, G, A, B, H, F, E
- ☐ B, C, D, H, A, E, G, F

Question 6 — 1 / 1 point

If a graph is a tree, then this graph is also a bipartite graph.

- ☑ True
- ○ False

Question 7 — 1 / 1 point

If a graph is bipartite, it cannot be a cycle graph.

- ○ True
- ☑ False