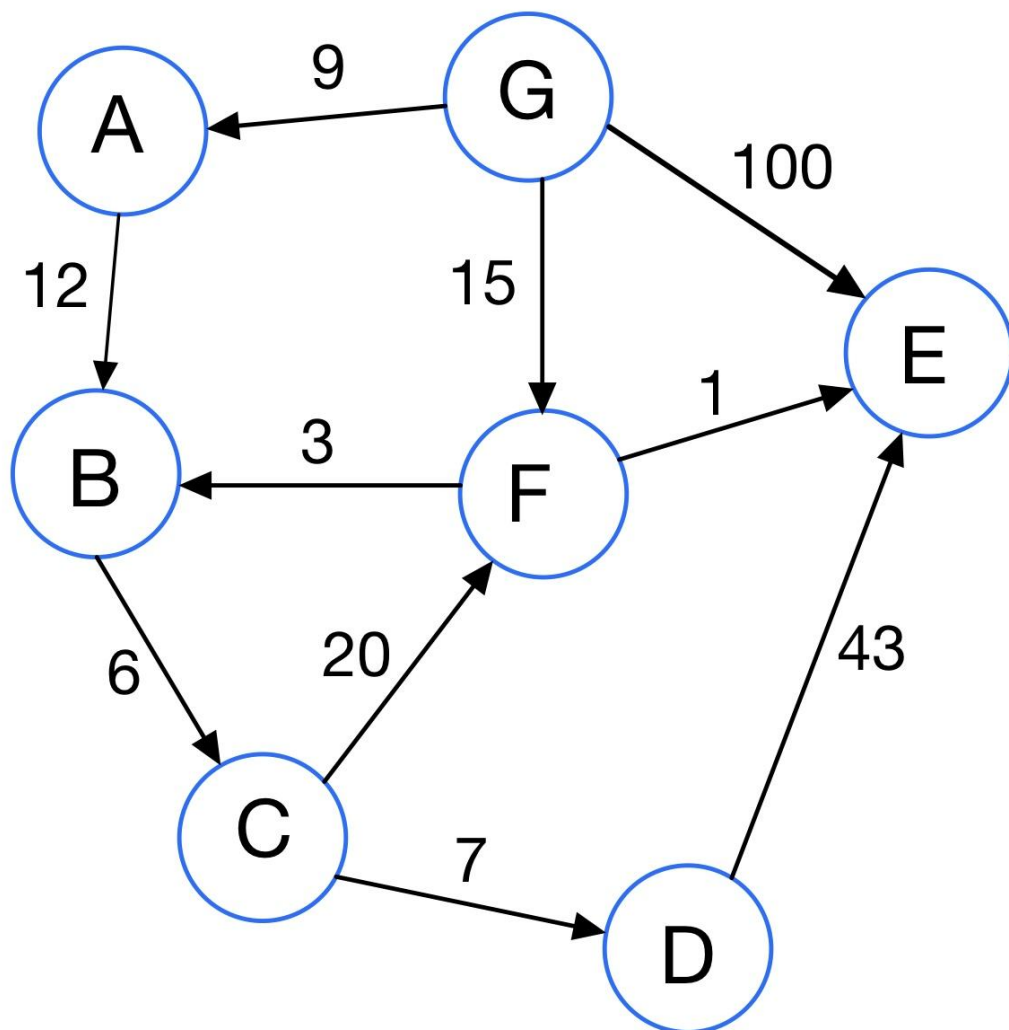


Student Number:

Name:

Question 1**1.0 pts**

The following graph has what characteristics? Select all that apply.

☐ Undirected

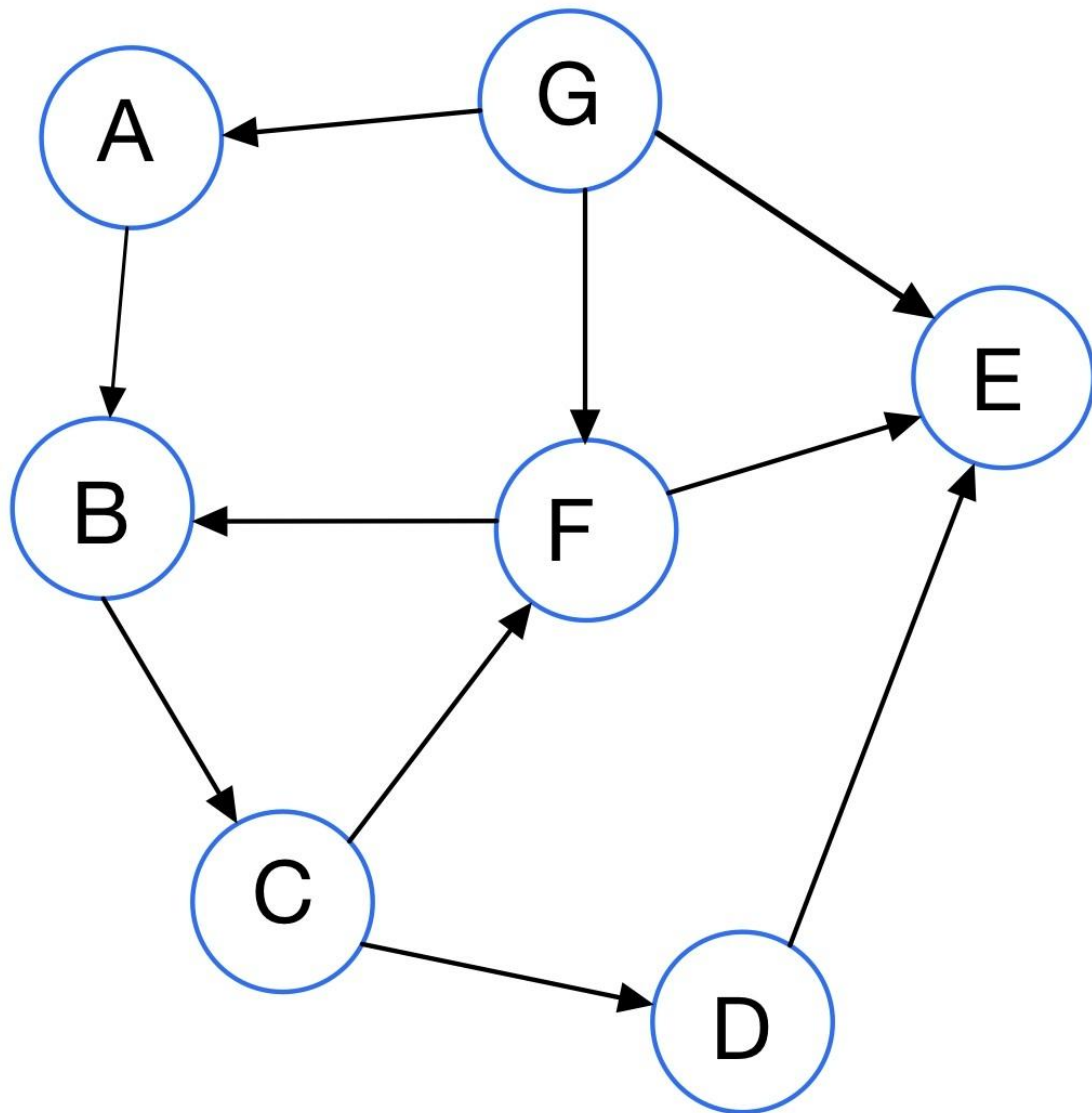
☐ Cyclic

☐ Weighted

☐ Unweighted

☐ Directed

☐ Acyclic

Question 2**1.0 pts**

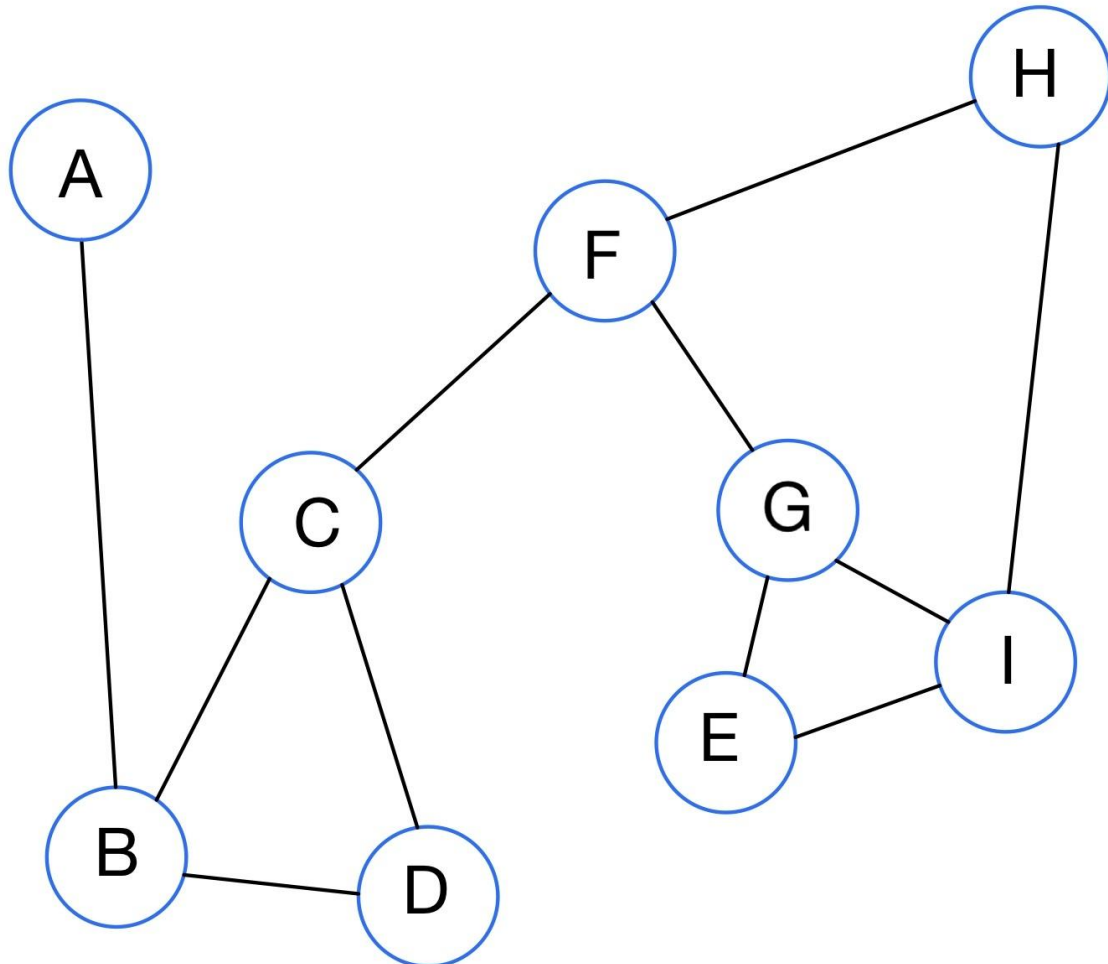
Which of the following are valid Breadth First Search Traversals? Select all that apply.

☐ GAFEBCD

☐ ABCDEGF

☐ GAFEBDC

☐ GEFABCD

Question 3**1.0 pts**

Which of the following are valid Depth First Search Traversals? Select all that apply.

☐ FHIGECDBA

☐ HIEFGCDBA

☐ ABCFHIGED

☐ ABCFHGIED

Question 4**1.0 pts**

Which of the following can be modelled as a directed acyclic graph?

- ☐ $G = \{(V, E): V = \text{set of pages in the World Wide Web}, E = : \text{page A links to page B}\}$
- ☐ $G = \{(V, E): V = \text{set of nodes in a social network}, E = : A \text{ is a friend of } B\}$
- ☐ $G = \{(V, E): V = \text{set of cities in a country}, E = : \text{there is a flight from A to B}\}$
- ☐ $G = \{(V, E): V = \text{set of courses you should take}, E = : A \text{ is a prerequisite for } B\}$

Question 5**1.0 pts**

The minimum number of edges in a disconnected graph with V vertices is:

- ☐ 0
- ☐ 1
- ☐ $(V-1)/2$
- ☐ $V-1$
- ☐ V

Question 6**1.0 pts**

The number of edges in an undirected graph is twice the number of edges in an equivalent directed graph.

- ☐ True
- ☐ False

Question 7**1.0 pts**

A directed graph is represented as an Edge List. What is the worst case time complexity to find if two vertices are adjacent to each other in this graph (neighbors of each other / connectedness property)?

- ☐ $O(1)$
- ☐ $O(\log V)$
- ☐ $O(V)$
- ☐ $O(\log E)$
- ☐ $O(E)$
- ☐ $O(EV)$

Question 8**1.0 pts**

A graph consists of 100 vertices and 109 edges. Is this graph sparse or dense?

- ☐ Sparse
- ☐ Dense

Question 9**1.0 pts**

Worst case time complexity to execute Breadth First Search and Depth First Search on a dense graph is the same.

- ☐ True
- ☐ False

Question 10

1.0 pts

Which of the following representations of Graphs take the largest amount of space when representing a dense graph?

☐ Edge List

☐ Adjacency Matrix

☐ Adjacency List