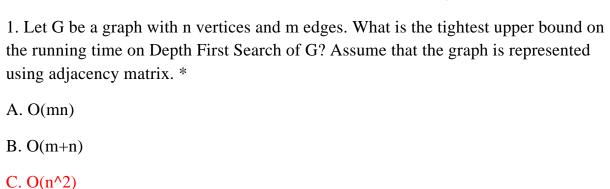
## **HOMEWORK – GRAPH (QUIZZ – GOOGLE DOCS)**

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- 2. Suppose depth first search is executed on the graph below starting at some unknown vertex. Assume that a recursive call to visit a vertex is made only after first checking that the vertex has not been visited earlier. Then the maximum possible recursion depth (including the initial call) is \_\_\_\_\_\_. \*
- A. 17

D. O(n)

- B. 18
- C. 19
- D. 20
- 3. Which one of the following cannot be the sequence of edges added, in that order, to a minimum spanning tree using Kruskal's algorithm? \*

A. 
$$(a-b),(d-f),(b-f),(d-c),(d-e)$$

B. 
$$(a-b),(d-f),(d-c),(b-f),(d-e)$$

C. 
$$(d-f),(a-b),(d-c),(b-f),(d-e)$$

D. 
$$(d-f),(a-b),(b-f),(d-e),(d-c)$$

4. The number of distinct minimum spanning trees for the weighted graph below is
A. 4
B. 5
C. 6
D. 7

- 5. Let G be an undirected graph. Consider a depth-first traversal of G, and let T be the resulting depth-first search tree. Let u be a vertex in G and let v be the first new (unvisited) vertex visited after visiting u in the traversal. Which of the following statements is always true? \*
- A. {u,v} must be an edge in G, and u is a descendant of v in T
- B. {u,v} must be an edge in G, and v is a descendant of u in T
- C. If {u,v} is not an edge in G then u is a leaf in T
- D. If {u,v} is not an edge in G then u and v must have the same parent in T