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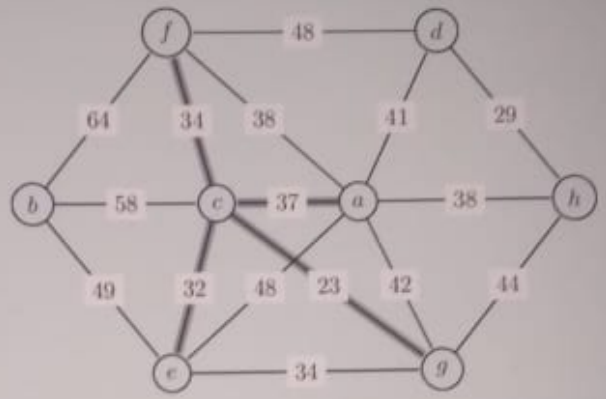
Hanh Trang

Question **1**

Answer saved

Marked out of 1.00

The bolded edges of the graph below represent the part of the Minimum Spanning Tree found by the PRIM algorithm:



The next edge of the Minimum Spanning Tree found by the PRIM algorithm is the edge ah

Note: you only enter the two endpoints of the edge, for example, the undirected edge a−ba−b is simply written as ab or ba.

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Mudim v0.8 ○Tắt ○ VNI ○ Telex ○ Viqr ● Tổng hợp ○ Tự động ☑Chính tả ☑Bỏ dấu kiểu mới [Bật/Tắt (F9) Ẩn/Hiện bảng điều khiển (F8)]

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Question **2**

Answer saved

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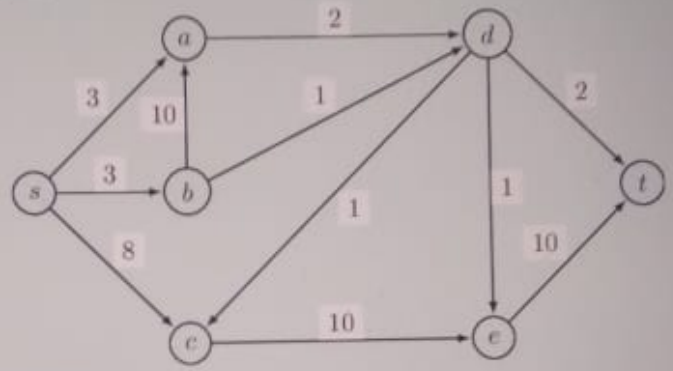
Consider the network with the capacity of each arc as below:



The value of maximum flow in the network is:
(Note: enter an appropriate number in the answer box, for example: 100)

Answer: 36

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Question 3

Answer saved

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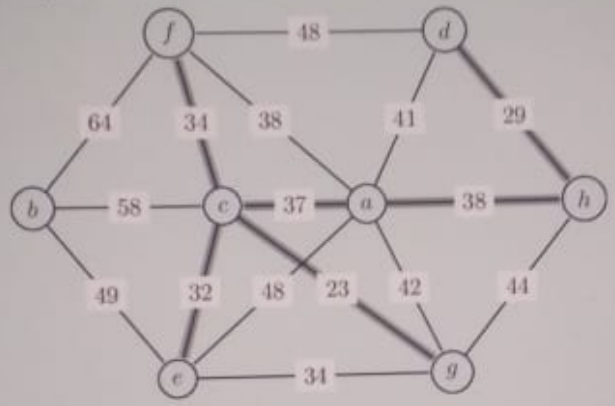
The bolded edges of the graph below represent the part of the Minimum Spanning Tree found by the Kruskal algorithm:



The next edge of the Minimum Spanning Tree found by the Kruskal algorithm is the edge ah

Note: you only enter the two endpoints of the edge, for example, the undirected edge $a - b$ is simply written as ab or ba.

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Question **4**

Answer saved

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Given an undirected graph G, all edges of G have the same weight. If we want to find the shortest path between any two vertices of the graph, which of the following algorithms is the most efficient?

- a. Floyd - Warshall
- b. Dijkstra
- c. Breadth First Search (BFS)
- d. Depth First Search (DFS)
- e. Bellman - Ford

Clear my choice

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Question **5**

Answer saved

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Given the statement: "There exists a simple undirected graph with 2021 vertices and each vertex has exactly 5 adjacent edges."

The above statement is true or false ?

Select one:

- True
- False

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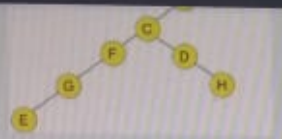
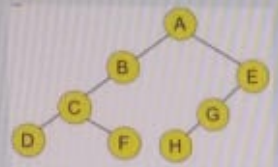
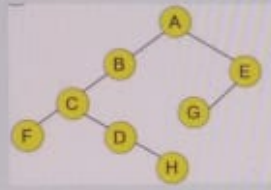


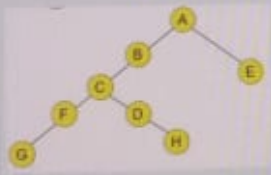
b.



c.



d.



Clear my choice

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Question **6**

Answer saved

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Determine which is a breadth-first search tree from vertex A (denote: BFS(A)) on the following graph:

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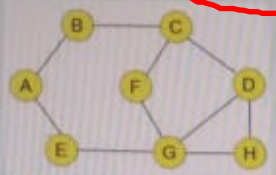
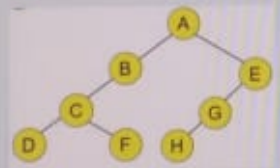


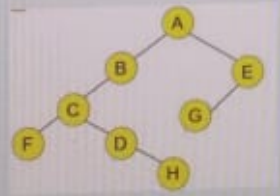
Note: when traversing vertices, it is **mandatory** to consider lexicographical order: A, B, C, D, E, F, G, H.

a.

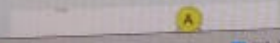
b.

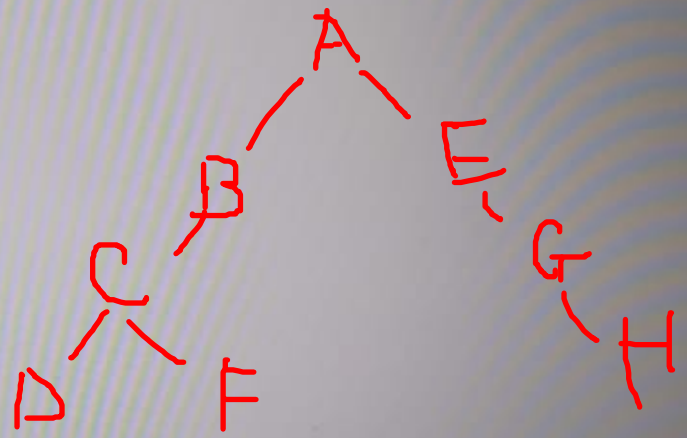


c.



d.





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Question 7

Answer saved

Marked out of 1.00

Undirected simple graph G with vertex set V={1,2,..., 10}. In this graph, for every pair of vertices, there is an edge connecting them. What is the number of single paths starting from vertex 1, passing through all the remaining vertices, and ending at vertex 10?

- a. 10
- b. None of the given choices are correct
- c. 362880
- d. 40320

Clear my choice

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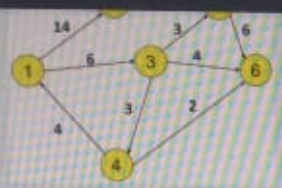
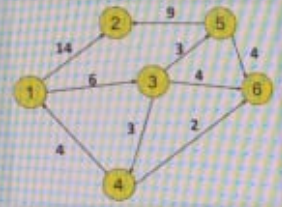
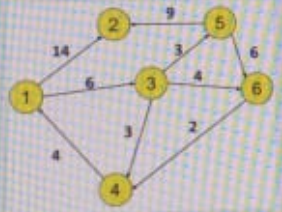


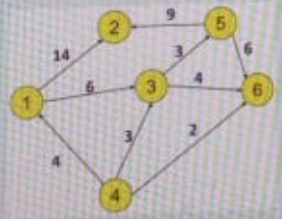
c.



d.



e.



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Question **8**

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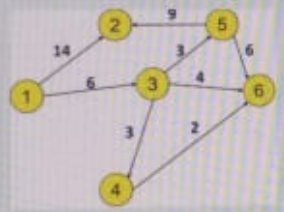
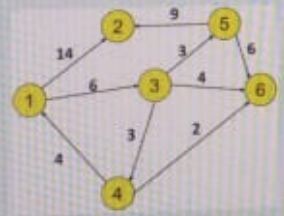
Determine which graph is represented by the following weight matrix:

	1	2	3	4	5	6
1	0	14	6	0	0	0
2	0	0	0	0	0	0
3	0	0	0	3	3	4
4	4	0	0	0	0	2
5	0	9	0	0	0	6
6	0	0	0	0	0	0

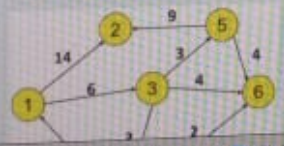
a.



b.



c.



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Question **9**

Answer saved

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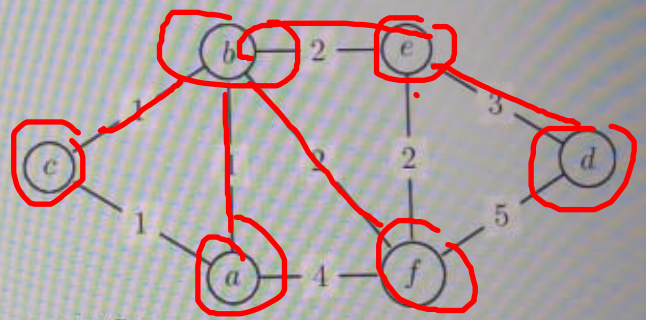
Given the undirected graph G with weight on each arc as below:



The weight of the minimum spanning tree of G is:
(Note: enter an appropriate number in the answer box, for example: 100)

Answer: 9

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Question **10**

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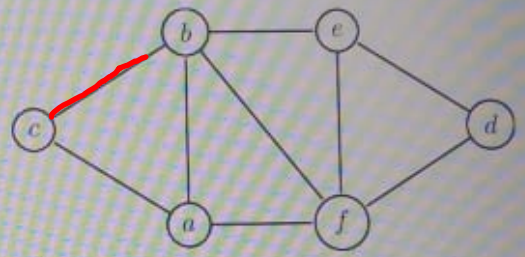
Given the graph G below:



The number of edges of the spanning tree of G is:

(Note: enter an appropriate number in the answer box; for example: 100)

Answer: 5

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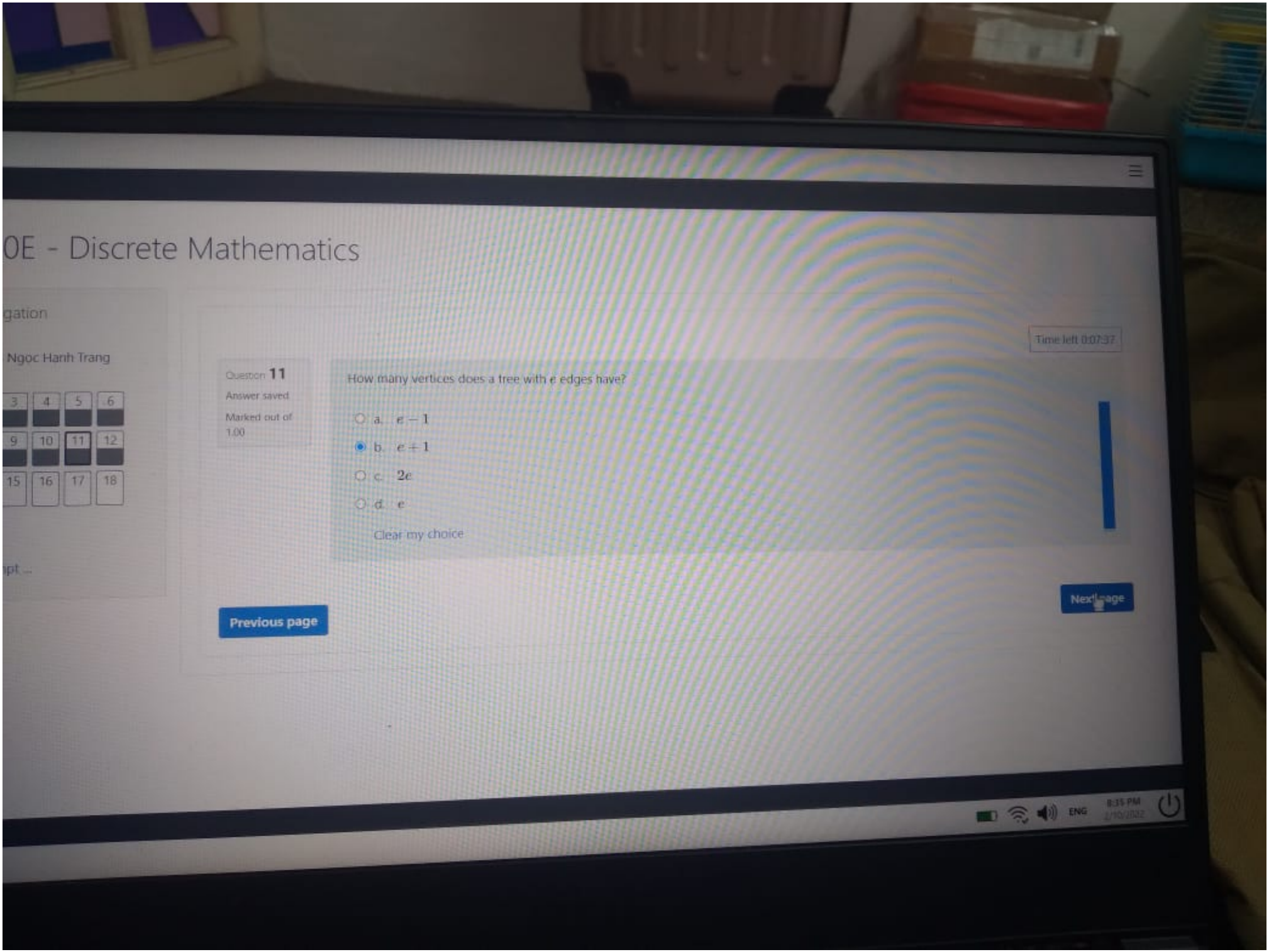
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Question 11
Answer saved
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How many vertices does a tree with e edges have?
a. $e-1$
b. $e+1$
c. $2e$
d. e
Clear my choice
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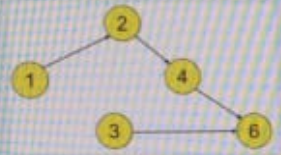
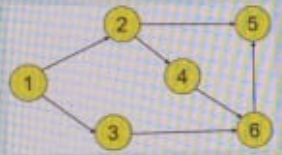
a.

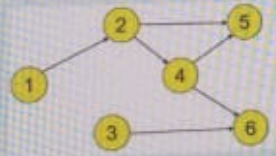
b.



c.



d.



Clear my choice

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Question 12

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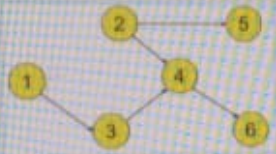
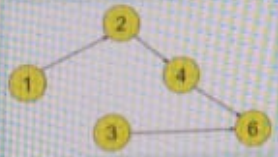
Given the graph G

Which of the following graphs is not a subgraph of G?

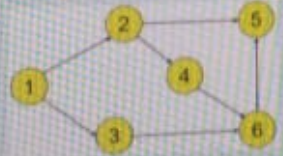
a.



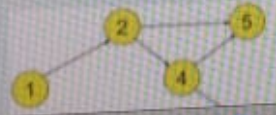
b.



c.



d.



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Question **13**

Answer saved

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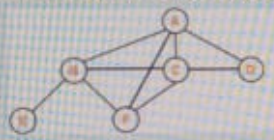
Apply Depth-First-Search algorithm (DFS) starting from vertex B on the following graph:



Note: when traversing vertices, it is **mandatory to consider lexicographical order: A, B, C, D, E, F.**

When the algorithm terminates, we have the path from vertex B to vertex F on the DFS tree is:

- a. None of the given choices are correct
- b. B --> F
- c. B --> A --> C --> F
- d. B --> A --> D --> C --> F
- e. B --> C --> F
- f. B --> A --> F

Clear my choice

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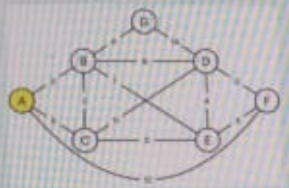
Question **14**

Not yet answered

Marked out of 1.00

Given the graph as below:



Apply Dijkstra's algorithm to find the shortest paths from vertex A to the remaining vertices of the graph. Note that, in Dijkstra algorithm, after each iteration, the algorithm will find the shortest path from vertex A to another vertex of the graph.

Determine the order of the vertices in which the algorithm finds the shortest path from A to them:

Note: when implementing the algorithm, **must traverse vertices in lexicographic order: A, B, C, D, E, F, G**

- a. B, C, F, G, E, D
- b. C, B, E, F, G, D
- c. None of the given choices are correct
- d. C, B, E, G, F, D
- e. B, C, G, E, F, D

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Question **15**

Not yet answered

Marked out of 1.00

Each menu for a meal at the restaurant ABC consists of 3 dishes: appetizer, main dish and dessert. The restaurant ABC has 5 types of appetizer, 3 types of main dish and 4 types of dessert. How many ways can a person choose the menu?

a. 60

b. None of the given choices are correct

c. 12

d. 120

e. 24

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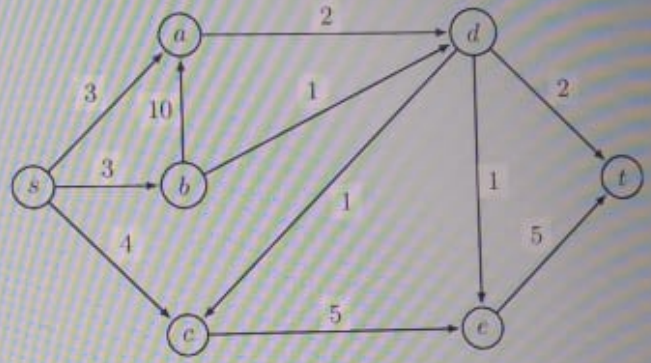
Question **16**

Not yet answered

Marked out of 2.00

Consider the following network with the number written on each arc as the capacity of the arc. You need to find the minimum cut, and then determine the value of the maximum flow of this network.



- Which of the following cuts is the **minimum cut** of the network:

  ○Cut S= { s, a, b, c}, T={d, e, t}

  ○Cut S= { s, a, b, c, d, e}, T={t}

- The value of maximum flow in the network is [ ] (Note: enter an appropriate number in the answer box, for example: 100)

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Question 17

Not yet answered

Marked out of 1.00

How many ways are there to choose a class monitor and a secretary from a class of 20 students? Note, the secretary and the class monitor must be two different students.

a. 380

b. 40

c. 400

d. None of the given choices are correct

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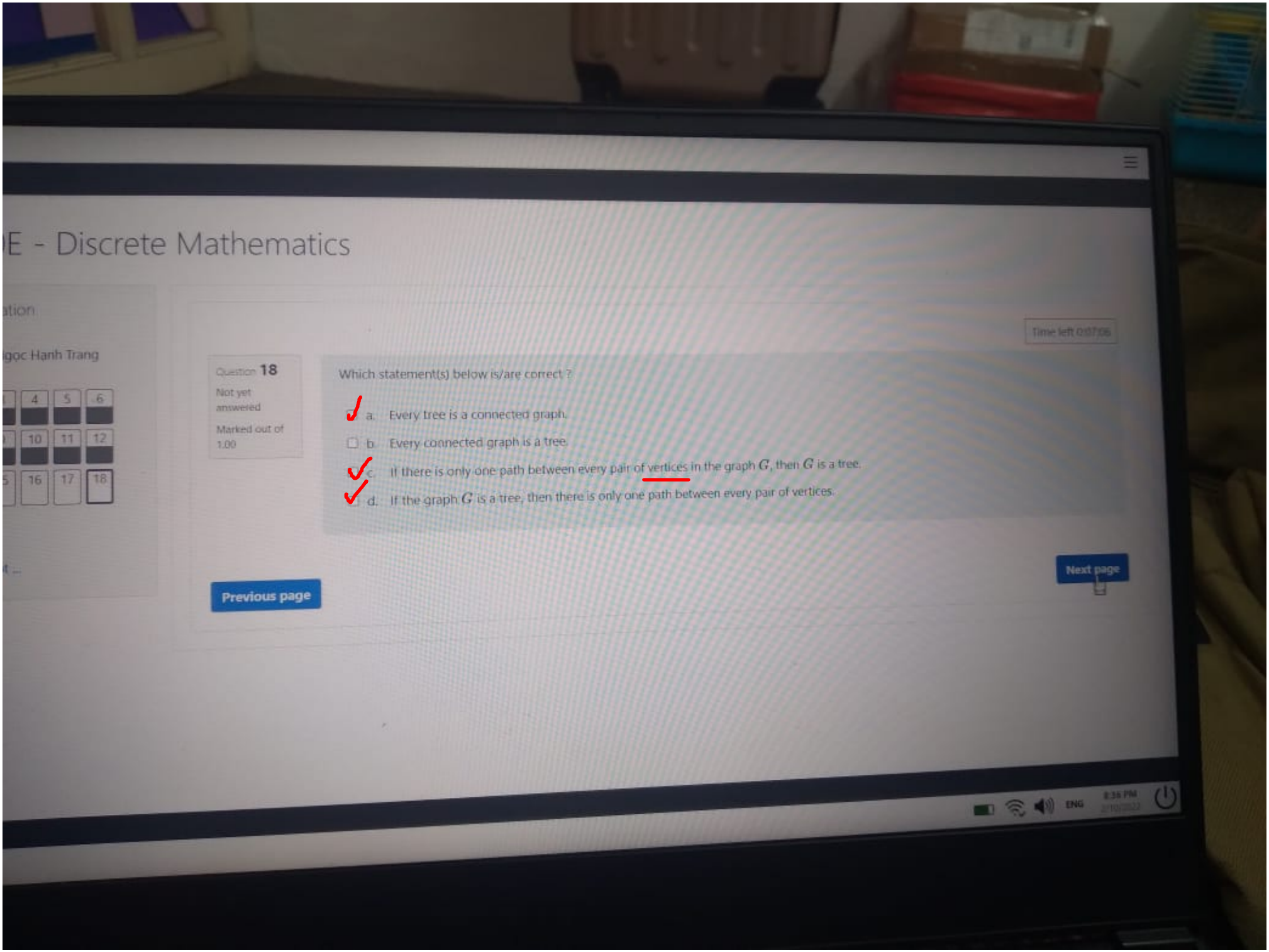
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Question 18
Not yet answered
Marked out of 1.00
Which statement(s) below is/are correct ?
a. Every tree is a connected graph.
b. Every connected graph is a tree.
c. If there is only one path between every pair of vertices in the graph G, then G is a tree.
d. If the graph G is a tree, then there is only one path between every pair of vertices.
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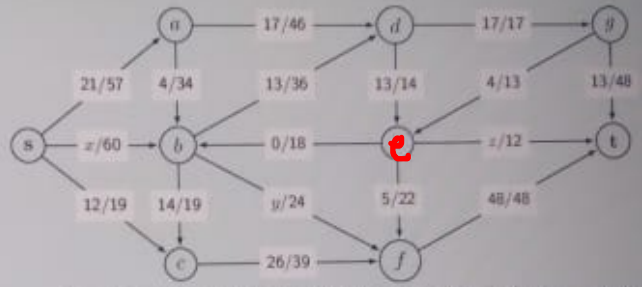
Question **19**

Not yet answered

Marked out of 2.00

Consider the flow on the network with a portion of the information given below. The pair of numbers p/q written on each arc means that p is the value of flow and q is the capacity of the arc.



Find the values of x, y and z corresponding to the values of the flow on the arc $s \to b$, $b \to f$ and $e \to t$. Then gives the value of the current flow in the network.

(Note: enter an appropriate number in each answer box, for example: 100)

- Value of x equals to
- Value of y equals to
- Value of z equals to
- Value of the current flow equals to

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Mudim v0.8 ○Tắt○ VNI ○ Telex ○ Viqr ◉ Tổng hợp ○ Tự động ☑Chính tả☑Bỏ dấu kiểu mới [Bật/Tắt (F9) Ẩn/Hiện bảng điều khiển (F8)]

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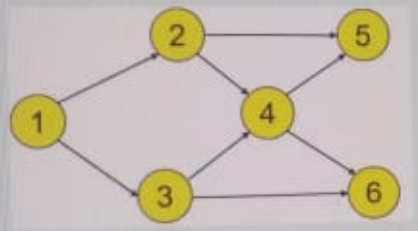
Question **20**

Not yet answered

Marked out of 1.00

Given the graph G as below:



Which of the following is not the **topological order** of G ?

- a. 1 3 2 4 5 6
- b. 3 2 4 1 6 5
- c. 1 2 3 4 5 6
- d. 1 3 2 4 6 5
- e. None of the given choices are correct

Finish attempt ...

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