CS203 Quiz2

A long string consists of the four characters A, C, G, T; they appear with frequency 31%, 20%, 9% and 40%, respectively. What is the Huffman encoding of these four characters?

Encoding for T: 1 ✔

Encoding for G: 000 ✔

Encoding for A: 01 ✔

Encoding for C: 001 ✔

Your answer is correct.

The correct answer is:
Encoding for T → 1,

Encoding for G → 000,

Encoding for A → 01,

Encoding for C → 001

Consider the following job sequence with their respective start time (s_i) and finish time (f_i).

i	1	2	3	4	5	6	7	8	9	10	11
s_i	1	3	0	5	3	5	6	8	8	2	12
f_i	4	5	6	7	9	9	10	11	12	14	16

Which of the job sequences are compatible or not?

(4, 8, 11): Yes ✔

(1, 4, 8): Yes ✔

(1, 5, 8): No ✔

(1, 6, 9, 11): No ✔

Your answer is correct.

The correct answer is:
(4, 8, 11) → Yes,

(1, 4, 8) → Yes,

(1, 5, 8) → No,

(1, 6, 9, 11) → No

The most efficient algorithm for finding the number of connected components in an undirected graph on V vertices and E edges has time complexity

1. $O(V)$
2. $O(V+E)$
3. $O(E)$ ✖
4. $O(V^2)$

Your answer is incorrect.

The correct answer is:
$O(V+E)$

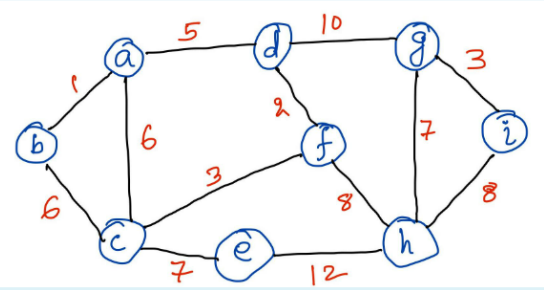
Which graph (no. of vertices >1) have a chromatic number of 1? (Chromatic number is the minimum number of colors required to color the vertices of the graph such that no two adjacent vertices have the same color)

Select the most appropriate answer.

- Graph with 1 vertex having self loop ✖
- Graph with no edges
- Graph with 2 vertex only
- Graph with having 1 connected component

Your answer is incorrect.

The correct answer is:
Graph with no edges



For the above undirected, weighted graph, which of the following sequences of edges represents a correct execution of Prim's algorithm to construct a Minimum Spanning Tree?

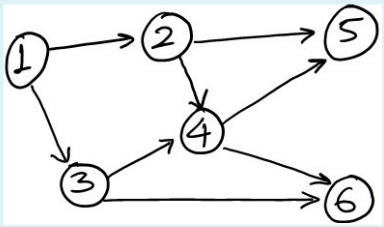
1. (d, f), (f, c), (a, b), (d, a), (c, e), (f, h), (g, i), (g, h)
2. (c, e), (c, f), (f, d), (d, a), (a b), (g, h), (h, f), (g, i)
3. (h, g), (g, i), (h, f), (f, d), (f, c), (d, a), (a, b), (c, e)
4. (a, b), (d, f), (f, c), (g, i), (d, a), (g, h), (c, e), (f, h) ✖

Your answer is incorrect.

The correct answer is:

(h, g), (g, i), (h, f), (f, d), (f, c), (d, a), (a, b), (c, e)

Which of the following is not a topological ordering of the following graph ?



Select one or more:

- [ ] 324165
- [x] 132645 ✔
- [x] 123456 ✖
- [ ] 132456

Your answer is partially correct.

You have correctly selected 1.

The correct answers are:

132645,

324165