Started on	Sunday, 14 May 2023, 9:20 PM
State	Finished
Completed on	Sunday, 14 May 2023, 9:33 PM
Time taken	13 mins 24 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

Given the following unweighted undirected graph please fill in the corresponding adjacency matrix.
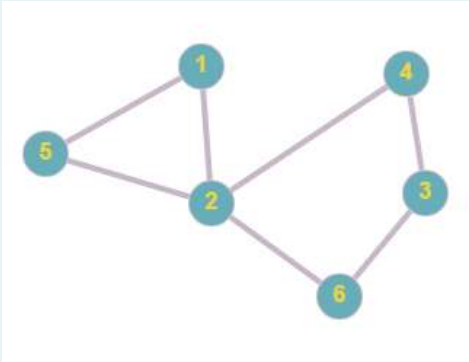
	1	2	3	4	5	6
1	0 ✔	X	X	X	X	X
2	1 ✔	0	X	X	X	X
3	0	0 ✔	0	X	X	X
4	0	1 ✔	1	0	X	X
5	1	1 ✔	0 ✔	0	0	X
6	0	1	1 ✔	0	0 ✔	0

Question 2

Correct

Mark 1.00 out of 1.00

Which of the following represent the correct pseudo code for non recursive DFS algorithm?

Select one:

- a.
```
procedure DFS-non_recursive(G,v):
  //let St be a stack
  St.push(v)
  while St is not empty
    v = St.pop()
    if v is not discovered:
      label v as discovered
      for all adjacent vertices of v do
        St.push(v)
```

- b.
```
procedure DFS-non_recursive(G,v):
  //let St be a stack
  St.pop()
  while St is not empty
    v = St.push(v)
    if v is not discovered:
      label v as discovered
      for all adjacent vertices of v do
        St.push(a) //a being the adjacent vertex
```

- c.
```
procedure DFS-non_recursive(G,v):
  //let St be a stack
  St.pop(v)
  while St is not empty
    v = St.pop()
    if v is not discovered:
      label v as discovered
      for all adjacent vertices of v do
        St.push(a) //a being the adjacent vertex
```

- d.
```
procedure DFS-non_recursive(G,v):
  //let St be a stack
  St.push(v)
  while St is not empty
    v = St.pop()
    if v is not discovered:
      label v as discovered
      for all adjacent vertices of v do
        St.push(a) //a being the adjacent vertex
```
✔

Your answer is correct.

The correct answer is:
```
procedure DFS-non_recursive(G,v):
  //let St be a stack
  St.push(v)
  while St is not empty
    v = St.pop()
    if v is not discovered:
      label v as discovered
      for all adjacent vertices of v do
        St.push(a) //a being the adjacent vertex
```

Question 3

Correct

Mark 1.00 out of 1.00

Time Complexity of Depth First Search is:

Select one:

○ a.   O(V / E)

○ b.   O(V * E)

○ c.   O(log(V + E))

◉ d.   O(V + E) ✔

Your answer is correct.

The correct answer is: O(V + E)

Question 4

Correct

Mark 1.00 out of 1.00

Adding a vertex in adjacency list representation is harder than adjacency matrix representation.

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 5

Correct

Mark 1.00 out of 1.00

Breadth First Search is equivalent to which of the traversal in the Binary Trees?

Select one:

○ a.   Pre-order Traversal

○ b.   Post-order Traversal

○ c.   In-order Traversal

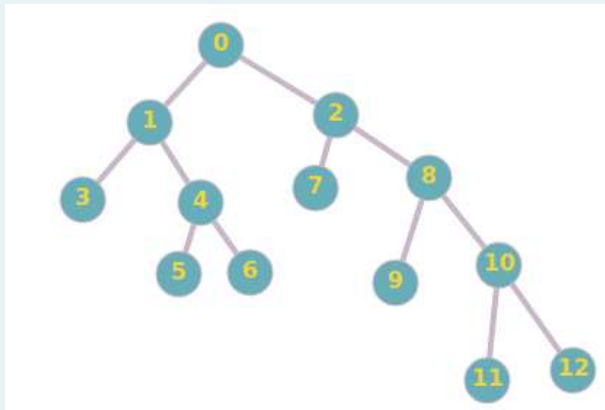◉ d.   None of the above ✔

Your answer is correct.

The correct answer is: None of the above

Question 6

Correct

Mark 1.00 out of 1.00

Find the output of Depth-FIrst search of the following tree using pre-order traversal :

Select one:

○ a.   3 1 5 4 6 0 7 2 9 8 11 10 12

○ b.   0 1 2 3 4 7 8 5 6 9 10 11 12

○ c.   3 5 6 4 1 7 9 11 12 10 8 2 0

◉ d.   0 1 3 4 5 6 2 7 8 9 10 11 12 ✔

Your answer is correct.

The correct answer is: 0 1 3 4 5 6 2 7 8 9 10 11 12

Question 7

Correct

Mark 1.00 out of 1.00

Correct choice of data structures can improve the performance of algorithms. Match the following algorithms with appropriate data structures

Depth first search   Stack   ✓

Breadth first search   Queue   ✓

Sorting   Heap   ✓

Your answer is correct.

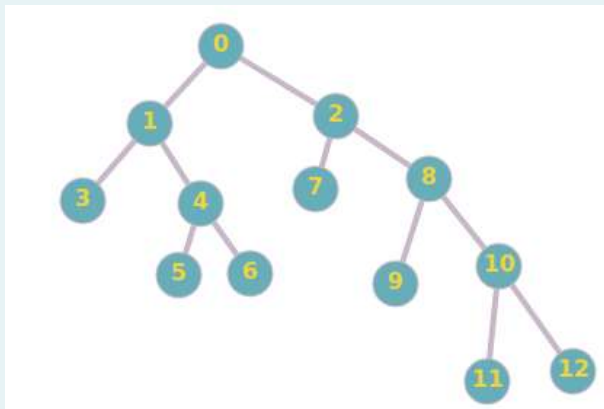Among the given choices, queue is the most appropriate for BFS, stack for DFS and heap for sorting

The correct answer is: Depth first search → Stack, Breadth first search → Queue, Sorting → Heap

---

Question 8

Correct

Mark 1.00 out of 1.00

Find the output of Breadth-First Traversal of the following tree:

Select one:

- a. 3 5 6 4 1 7 9 11 12 10 8 2 0

- b. 0 1 3 4 5 6 2 7 8 9 10 11 12

- c. 0 1 2 3 4 7 8 5 6 9 10 11 12 ✓

- d. 3 1 5 4 6 0 7 2 9 8 11 10 12

Your answer is correct.

The correct answer is: 0 1 2 3 4 7 8 5 6 9 10 11 12

Question 9

Correct

Mark 1.00 out of 1.00

Which of the following data structure is used to implement DFS?

Select one:

○ a. Stack ✔

○ b. Linked list

○ c. Queue

○ d. Tree

Your answer is correct.

The correct answer is: Stack

Question 10

Correct

Mark 1.00 out of 1.00

What is the maximum number of edges in an undirected graph with 'n' vertices, considering there are no self-loops or parallel edges?

○ a. n(n-1)/2 ✔

○ b. n(n-1)

○ c. n(n+1)/2

○ d. n^2

Your answer is correct.

The correct answer is:
n(n-1)/2