Answer (Choose 1 answer)

☐ A

☐ B   A. 7 11 6 4 3 15 8 12 35

☐ C   B. 7 11 6 4 3 15 35 8 12

☐ D   C. 7 11 6 4 3 15 8 35 12

☐ E   D. 35 7 11 6 4 3 15 8 12

       E. 7 11 6 4 3 35 15 8 12

Next

Suppose a doubly linked list of integers is given below and p is a reference to the node with value 15 in the list (i.e. p.info=15):
(head) 7 11 6 4 3 15 8 12 (tail)
What does the list look like after the following java code snippet is run?
int x = 35;
Node f = p.prev; // prev is a link to predecessor node
Node q = new Node(x); // Create new node with value x
q.prev = f; q.next = p;
f.next = q; p.prev = q;

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50
☐ I want to finish the exam.
Finish   Exit

Answer (Choose 1 answer)

☐ A

☐ B   A. True

       B. False

Next

State True or False:
In a singly-linked list every element contains some data and a link to the next element, which allows to keep the structure.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50
☐ I want to finish the exam.
Finish   Exit

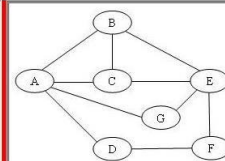**Answer** (Choose 1 answer)

☐ A   Given a graph below and colors numbered 1, 2, 3, ... are assigned to vertices with
       the sequential coloring algorithm that orders vertices by alphabetical order (i.e. the
☐ B   vertex labeled A comes first, then the vertex B,...)
       What is the color of the vertex E?
☐ C
       A. 5
☐ D
       B. 3
☐ E
       C. 1

Next   D. 4

       E. 2

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50
☐ I want to finish the exam.
Finish   Exit

Answer (Choose 1 answer)

☐ A

☐ B   A. BC

☐ C   B. BCA

☐ D   C. CAA

       D. CA

Next

Suppose you are using the LZW algorithm to encode the message AABCAAAABD contents of the dictionary at the beginning of encoding are:
(1) A (2) B (3) C (4) D
What string is denoted by code word (7)?

☐ I want to finish the exam.
Finish   Exit

Answer (Choose 1 answer)

☐ A   Given the division hash function $h(x) = x\%M$, where M = 10 and Collision Resolution

☐ B   is quadratic probing, i.e. when inserting a key x, the collision is resolved by finding
an available position at $(h(x) + i^2)\%M$), i=1, 2, ...

☐ C   How the hash table looks like after inserting the following keys sequentially?
   34, 65, 94, 204

☐ D

   A. (4)

   B. (3)

   C. (2)

Next   D. (1)

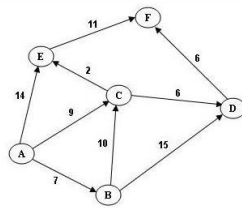| (1)		(2)		(3)		(4)	
0		0		0		0	
1		1		1		1	
2		2	204	2		2	
3	204	3		3	204	3	
4	34	4	34	4	34	4	34
5	65	5	65	5	65	5	65
6		6		6		6	
7		7		7		7	
8		8	94	8	94	8	94
9	94	9		9		9	204

☐ I want to finish the exam.
Finish   Exit

Answer (Choose 1 answer)

☐ A   Given a weighted graph below and you are using the Dijkstra algorithm to find the
shortest path from the vertex A to the vertex F. What are the correct order of

☐ B   vertices selected into the set S until the vertex F is selected? (Each step a vertex
with minimal current distance is selected into S).

☐ C

☐ D   A. A, B, C, E, D, F

   B. A, B, C, E, F

   C. A, C, D, F

Next   D. A, C, E, F

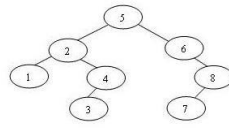☐ I want to finish the exam.
Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B

☐ C

☐ D

Given a binary search tree T below. What is a result of breadth-first traverse of T
  after you delete by copying the root (node 5)?

A. 2, 1, 4, 3, 6, 7, 8

B. 4, 2, 6, 1, 3, 8, 7

C. 2, 1, 4, 3, 6, 8, 7

D. 4, 2, 6, 1, 3, 7, 8

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

☐ A

☐ B

(Choose 1 answer)

A. False

B. True

In Huffman coding, both the sender and receiver must have a copy of the same
code in order for the decoded file to match the encoded file.

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

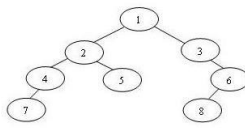☐ I want to finish the exam.

Finish

Exit

Answer

☐ A

☐ B

☐ C

☐ D

(Choose 1 answer)

Given a binary tree below. What is a result of pre-order traverse?

A. 7, 4, 2, 5, 1, 3, 8, 6

B. 1, 2, 4, 7, 5, 3, 6, 8

C. 1, 2, 4, 7, 5, 3, 8, 6

D. 7, 4, 5, 2, 8, 6, 3, 1

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer (Choose 1 answer)

- [ ] A
- [ ] B
- [ ] C
- [ ] D
- [ ] E

A. 7 11 6 4 3 10 9 8 2

B. 7 11 6 4 3 9 10 8 2

C. 7 11 6 4 3 10 8 2 9

D. 9 7 11 6 4 3 10 8 2

E. 7 9 11 6 4 3 10 8 2

[Next]

Suppose a doubly linked list of integers is given below and p is a reference to the node with value 10 in the list (i.e. p.info=10):
(head) 7 11 6 4 3 10 8 2 (tail)
What does the list look like after the following java code snippet is run?
```
int x = 9;
Node p1, p2;
p1 = new Node(x);
p2 = p.next;
p.next = p1; p1.prev = p;
p1.next = p2; p2.prev = p1;
```

[ ] I want to finish the exam.
[Finish] [Exit]

Answer (Choose 1 answer)

- [ ] A
- [ ] B
- [ ] C
- [ ] D

A. In all cases the selection sort is O(n^2).

B. In the worst case the selection sort is O(n^2), in the best case it is O(nlog n).

C. In the worst case the selection sort is O(n^2), in the best case it is O(n).

D. In the average case the selection sort is O(n^2), in the best case it is O(nlog n).

[Next]

Select the most correct statement:

[ ] I want to finish the exam.
[Finish] [Exit]

Answer (Choose 1 answer)

- [ ] A
- [ ] B
- [ ] C
- [ ] D

A. The program keeps running until you press Ctrl-C

B. The results are nondeterministic

C. The run-time stack overflows, halting the program

D. The operating system detects the infinite recursion because of the "repeated state"

[Next]

Consider the following function:
```
void quiz(int n)
{if (n > 1)
   {quiz(n);
    quiz(n);
   }
   System.out.print("* ");
}
```
What will happen if the statement quiz(5); is run?

[ ] I want to finish the exam.
[Finish] [Exit]

Answer

- ☐ A
- ☐ B
- ☐ C
- ☐ D

(Choose 1 answer)

A. Adretfdo

B. Adretfoo

C. Adretfon

D. Adoretoo

Consider the following pseudocode:
declare a stack of characters
while(there are more characters in the word to read)
{read a character
 if a character is '*' then
  pop and write the poped character to the screen
 else
  push the character into the stack
}
What is written to the screen for the input "GoodA**fter*****Noo*n" ?

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

- ☐ A
- ☐ B

(Choose 1 answer)

A. False

B. True

In a linked list, the tail node is introduced for performance purpose only.

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

- ☐ A
- ☐ B
- ☐ C
- ☐ D

(Choose 1 answer)

A. n

B. n-1

C. n+1

D. 2n

The number of edges required to create a minimum spanning Tree of the graph G (n vertices) is

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

☐ A

☐ B

☐ C

☐ D

Next

(Choose 1 answer)

A. void dequeue(Object x)
{ if (isEmpty()) return(null);
    pool.remove(pool.size()-1);
}

B. Object dequeue()
{ if (isEmpty()) return(null);
    return(pool.removeFirst());
}

C. Object dequeue()
{ if (isEmpty()) return(null);
    return(pool.removeLast());
}

D. Object dequeue()
{if (isEmpty()) return;
    return(pool.remove(pool.size()-1));
}

Specify the correct implementation of dequeue() method of a queue. This queue uses java.util.LinkedList for storing data and the head of the list is treated as the head of the queue. (Choose the most suitable one)

☐ I want to finish the exam.
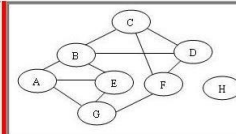
Finish

Exit

Answer

☐ A

☐ B

☐ C

☐ D

Next

(Choose 1 answer)

What is the breadth-first traversal from the vertex C of a graph below? (visit nodes in ABC order if there are some nodes having the same selection ability)

A. C, B, D, A, E, F, H, G

B. C, B, D, A, E, F, G, H

C. C, B, D, F, A, E, G

D. C, B, D, F, A, E, G, H

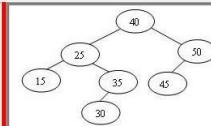☐ I want to finish the exam.

Finish

Exit

Answer

☐ A

☐ B

☐ C

☐ D

Next

(Choose 1 answer)

Consider the AVL tree below. What is the breadth first traversal of the tree after inserting a node with value 27?

A. 40, 25, 50, 15, 35, 45, 27, 30

B. 40, 25, 50, 15, 30, 45, 27, 35

C. 40, 25, 50, 15, 35, 45, 30, 27

D. 40, 25, 50, 15, 30, 45, 35, 27

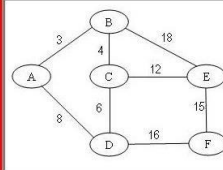☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

☐ A

☐ B

☐ C

☐ D

☐ E

Given a weighted graph below. What is the total edge-weight of the minimum spanning tree of G?

A. 43

B. 41

C. 48

D. 40

E. 25

Next

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B

☐ C

☐ D

Specify the correct statement about open addressing method for handling collision (select the best answer).

A. The collision is resolved by finding a free memory area to store any collision

B. The collision is resolved by finding an available table entry other than the position to which the colliding key is originally hashed

C. Each position of the table is associated with a linked list or chain of structures whose info fields store keys or references to keys

D. A free memory area is opened for storing keys

Next

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B

☐ C

☐ D

Given a raw message 'BBBBQQQQBBBQQBBBBBQQ' (without single quote). Run the run-length encoding algorithm for that message, what is the output?

A. 4B4Q3B2Q5B2Q

B. 4B4Q3B2Q5B2QQ

C. B4Q4B3Q2B5QQ2

D. 4B4Q3B2Q5B

Next

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

Select the most correct statement about the complexity of heapsort

☐ A

☐ B   A. The best case is O(n), and the worst case is O(n^2)

☐ C   B. The best case is O(n), and the worst case is O(nlogn)

☐ D   C. Best case is O(nlogn), the worst case is O(n^2)

     D. Both best and worst cases are O(nlogn)

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

Suppose we are considering a binary search tree.
Select the most correct java code snippet
that search a node with value x on the sub-tree with root p.

☐ A

☐ B

☐ C

```
A. Node search(Node p, int x)
   {if(p.info==x) return(p);
     if(x<p.info)
        return(search(p.left,x));
     else
        return(search(p.right,x));
   }

B. Node search(Node p, int x)
   { if(p==null) return(null);
     if(p.info==x) return(p);
     if(x<p.info)
        return(search(p.left,x));
     else
        return(search(p.right,x));
   }

C. Node search(Node p, int x)
   { if(p==null) return(null);
     if(p.info==x) return(p);
     if(x<p.info)
        return(search(p.right,x));
     else
        return(search(p.left,x));
   }
```

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

Given a binary tree below. What is a result of in-order traverse?

☐ A

☐ B   A. 4, 2, 7, 5, 1, 3, 8, 6

☐ C   B. 4, 2, 5, 7, 1, 8, 6, 3

☐ D   C. 4, 7, 5, 2, 8, 6, 3, 1

     D. 4, 2, 7, 5, 1, 8, 6, 3

Next
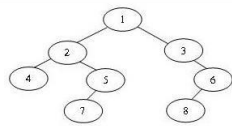
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

☐ A

☐ B   A. 9

☐ C   B. 7

☐ D   C. 8

       D. 10

Next

Consider the following function:
```
int fun(int n)
   {if(n<=0) return(1);
     return(2*fun(n-2));
   }
```
What is the output when the statement:
   System.out.println(fun(5));
is run?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B   A. 3

☐ C   B. 2

☐ D   C. 4

       D. 5

Next

Select the correct statement.
Suppose T is a binary tree with 14 nodes. What is the minimum possible height of T?
(Note: In a tree the height of root is 1)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B

A. gnooM

☐ C

B. gnodo

☐ D

C. gnooG

D. Goong

Consider the following pseudocode:
declare a stack of characters
while(there are more characters in the word to read)
 {read a character
  if a character is '*' then
   pop the stack
   else
    push the character into the stack
 }
while(the stack is not empty)
 pop and write the poped character to the screen

What is written to the screen for the input "Good*Mor**ni***ng" ?

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B

A. Every full binary tree is also a complete binary tree.

☐ C

B. No binary tree is both complete and full.

☐ D

C. Every complete binary tree is also a full binary tree.

D. Every binary tree is either complete or full.

Select the correct statement.
(full binary tree = proper binary tree = 2-tree)

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

(Choose 1 answer)

☐ A

☐ B

A. It removes the last element of the list

☐ C

B. It returns the first element of the list

☐ D

C. It removes the second element of the list

D. It removes the first element of the list

Consider the fun() method in a singly linked list below:
void fun()
 { if (isEmpty()) return;
    if (head == tail)
        head = tail = null;
        else head = head.next;
 }
Specify the correct statement about the fun() method in the code above (choose the most suitable one).

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |

| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish   Exit

Answer

☐ A

☐ B

(Choose 1 answer)

A. False

B. True

State True or False:
In a singly-linked list, there is no efficient way to insert a node before a given node in the middle or at the end of the list, but we can insert a node after a given node or at the beginning of the list with time complexity O(1).

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.
Finish   Exit

Answer

☐ A

☐ B

☐ C

☐ D

(Choose 1 answer)

Using the Huffman code tree below. What is the result of decoding the string:
0010101010010 ?

A. BABABBBA

B. AABBABAB

C. CAABBBBA

D. AABBBBAB

Next
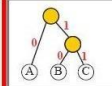
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.
Finish   Exit

Answer

☐ A

☐ B

☐ C

☐ D

(Choose 1 answer)

A. 3

B. 4

C. 2

D. 5

Consider the binarySearch() function below:
```
int binarySearch(int [] a, int x, int low, int high)
  { int t, k;
    if(low > high) return( -1);
    k = (low + high) / 2;
    if(a[k] == x)  return(k);
    if(x<a[k])  return(binarySearch(a,x,low,k-1);
        else  return(binarySearch(a,x,k+1,high);

  }
```
Suppose the array a is given by the statement:
int [] a = {2,4,6,8,10,12,14, 16};
For the call binarySearch(a,7,2, 5), how many calls to this will be made, including the original call?

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.
Finish   Exit

Answer

☐ A

☐ B

☐ C

☐ D

(Choose 1 answer)

The term "push" and "pop" is related to the

A. stacks

B. lists

C. array

D. queues

Next

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

43	44	45	46	47	48	49	50

☐ I want to finish the exam.

Finish

Exit

Answer

☐ A

☐ B

☐ C

☐ D

(Choose 1 answer)

Select the most correct statement about the complexity of insertion sort

A. The best case is O(nlogn), and the worst case is O(n^2)

B. The best case is O(n), and the worst case is O(nlogn)

C. The best case is O(n), and the worst case is O(n^2)

D. Both best and worst cases are O(n^2)

Next

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

43	44	45	46	47	48	49	50

☐ I want to finish the exam.

Finish

Exit

Answer

☐ A

☐ B

☐ C

☐ D

(Choose 1 answer)

Select the statement that is most correct.
Basically, the complexity (worst-case) of search algorithm in singly linked lists is

A. O(1)

B. O(n^2)

C. O(log n)

D. O(n)

Next

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42

43	44	45	46	47	48	49	50

☐ I want to finish the exam.

Finish

Exit

Answer (Choose 1 answer)

☐ A
☐ B
☐ C
☐ D

A. Node f = head;
while(f.next != p) f = f.next;
f.next = p.next;

B. Node f = head;
while(f != p) f = f.next;
f.next = p.next;

C. Node f = head;
while(f != null) f = f.next;
f.next = p.next;

D. Node f = head;
while(f.next != null) f = f.next;
f.next = p.next;

Next

Suppose we are considering a singly linked list and p is some node in the list which has both predecessor and successor nodes.
Select the most correct java code snippet that deletes the node p.

Answer (Choose 1 answer)

☐ A
☐ B
☐ C
☐ D
☐ E

A. 3
B. 4
C. 12
D. 11
E. 5

Next

Consider the following function:
```
int fun(int n)
    {if(n==1 || n==2)
        return(1);
    else
        return(fun(n-1) + 2*fun(n-2));
    }
```
What is the value of fun(3)?

Answer (Choose 1 answer)

☐ A
☐ B
☐ C
☐ D

Consider a graph below. Cut-vertices in the graph are

A. b, c, d
B. c, e, a
C. e, d, a
D. b, c, e
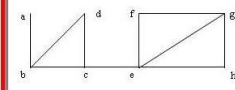
Next

Answer

(Choose 1 answer)

☐ A

☐ B

A. 6, 3, 7, 1, 5, 2, 8

☐ C

B. 6, 3, 7, 1, 5, 8, 2

☐ D

C. 6, 3, 7, 1, 2, 5, 8

D. 6, 3, 1, 2, 5, 7, 8

Next

What is the result of the breadth first traverse of the binary search tree T, after inserting the following keys into the tree sequentially (suppose T is empty before insertion):
6, 7, 3, 1, 2, 5, 8

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

☐ A

☐ B

A. fun(1023);

☐ C

B. fun(-1023);

☐ D

C. fun(0);

D. fun(100);

Next

Consider the following function:
```
void fun(int n)
 {if (n < 0)
   {System.out.println("-");
    fun(-n);
   }
  else if(n<10)
    System.out.println(n);
    else
    {fun(n/10);
     System.out.println(n%10);
    }
 }
```
Which call will result in the most recursive calls?

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

☐ A

What is the breadth-first traversal of a tree below after deleting the node 15 by copying?

☐ B

☐ C

A. 30, 5, 40, 25, 35, 10, 20

☐ D

B. 30, 25, 40, 5, 20, 10, 35

C. 30, 5, 40, 10, 35, 25, 20

D. 30, 10, 40, 5, 25, 35, 20

Next
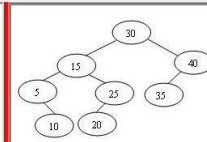
☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

Specify the correct statement about chaining method for handling collision

☐ A

☐ B

A. None of others

☐ C

B. In chaining, some positions of the table is associated with a linked list or chain of structures whose info fields store keys or references to keys

☐ D

C. In chaining, the linked-list is used instead of array for a hash table

D. In this method, the table can never overflow if free memory is available, because the linked list is extendible.

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

Suppose a doubly linked list of integers is given below and p is a reference to the node with value 12 in the list (i.e. p.info=12):
(head) 7 11 6 4 13 12 8 2 (tail)
What does the list look like after the following java code snippet is run?
int x = 15;
Node f = p.prev; //prev is a link to predecessor node
Node q = new Node(x);
q.prev = f; q.next = p;
f.next = q; p.prev = q;

☐ A

☐ B

A. 7 11 6 4 13 12 8 2 15

☐ C

B. 7 11 6 4 13 15 12 8 2

☐ D

C. 7 5 11 6 4 13 12 8 2

☐ E

D. 7 11 6 4 13 12 15 8 2

E. 15 7 11 6 4 13 12 8 2

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

(Choose 1 answer)

Consider the fun() method in a singly linked list below:
void fun()
 {if (isEmpty()) return;
  if (head == tail)
    head = tail = null;
   else
    {Node p1,p; p1=null;p=head;
     while(p!=tail) {p1=p;p=p.next;}
     p1.next=null; tail=p1;
     }
  }
 }
Specify the correct statement about the fun() method in the code above (choose the most suitable one).

☐ A

☐ B

A. It removes a node at the middle of the list

☐ C

B. It removes a node at the end of the list

☐ D

C. The code does not change the list.

D. It removes a node at the beginning of the list

Next

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

☐ I want to finish the exam.

Finish

Exit

Answer

- [ ] A
- [ ] B
- [ ] C
- [ ] D

(Choose 1 answer)

A. wAreYouT

B. HowAreY

C. owAreYou

D. HowAreYo

Next

Consider the following pseudocode:
declare a queue of characters
while(there are more characters in the word to read)
{read a character
  if a character is '*' then
    dequeue and write the dequeued character to the screen
  else
    enqueue the character into the queue
}
What is written to the screen for the input "HowAre**You**To***Day" ?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50

- [ ] I want to finish the exam.

Finish   Exit

Answer

- [ ] A
- [ ] B
- [ ] C
- [ ] D

(Choose 1 answer)

Consider the following pseudocode:
declare a queue of characters, which is implemented by circular array of size 6.
while(there are more characters in the word to read)
{read a character
  if a character is '*' then
    dequeue the queue
  else
    enqueue the character into the queue
}
How the queue looks like after processing the input "Goo**dMor***ning**"?

A. (4)

B. (1)

C. (3)

D. (2)

Next

(1)

0	1	2	3	4	5
	i	n	g		o

(2)

0	1	2	3	4	5
i	n	g			o

(3)

0	1	2	3	4	5
	i	n	g	o	

(4)

0	1	2	3	4	5
	n	i	n	g	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50

- [ ] I want to finish the exam.

Finish   Exit

Answer

☐ A
☐ B
☐ C
☐ D

Next
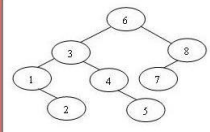
(Choose 1 answer)

Given a binary search tree T below. What is a result of breadth-first traverse of T after you delete by merging the node 3?

A. 6, 1, 8, 2, 7, 4, 5

B. 6, 1, 7, 2, 8, 5, 4

C. 6, 2, 8, 1, 4, 7, 5

D. 6, 2, 7, 1, 4, 8, 5

☐ I want to finish the exam.

Finish   Exit

Answer

☐ A
☐ B
☐ C
☐ D

Next

(Choose 1 answer)

Given the division hash function h(x) = x%M, where M = 10 and Collision Resolution is linear probing. How the hash table looks like after inserting the following keys sequentially?
   95,33,221, 204, 53, 243

A. (3)

B. (2)

C. (1)

D. (4)

☐ I want to finish the exam.

Finish   Exit