Suppose we have a circular array implementation of the queue,with ten items in the queue stored at data[2] through data[11]. The current capacity of an array is 12.

Where does the insert method place the new entry in the array? Assume array indexing starts from 0(zero).

A. data[1]

B. data[0]

C. data[11]

D. data[12]

ANSWER: B

If the sequence of operations - push(1), push(2), pop, push(1), push(2), pop, pop, pop, push(2), pop are performed on a stack, the sequence of popped out values are ?

A. 2, 2, 1, 1, 2

B. 2, 2, 1, 2, 2

C. 2, 1, 2, 2, 1

D. 2, 1, 2, 2, 2

ANSWER: A

The postfix equivalent of the prefix * + ab - cd is ?

A. ab + cd - *

B. abcd + - *

C. ab + cd * -

D. ab + - cd *

ANSWER: A

Which of the following data structure may give overflow error, even though the current number of elements in it is less than its size?

A. stack

B. circular queue

C. simple queue

D. array

ANSWER: C

Which of the following shows the number of disk moves for the 6 disk towers of Hanoi problem?

A. 31

B. 64

C. 63

D. 32

ANSWER: C

Suggest an appropriate data structure for the following cases-"When a key of keyboard is pressed, the character is printed on the monitor screen".

A. Linked list

B. Stack

C. Queue

D. Priority queue

ANSWER: C

An array A[2:10, 1:15] is stored in column major order having base address 5115 and each element of array occupies 3 bytes. Find the address of an element A[4,4].

A. 5150

B. 5146

C. 5208

D. 5220

ANSWER: D

If the address of A[1][2] and A[2][2] are 1012 and 1018 respectively and each element occupies 2 bytes then the array has been stored in _____ order.

A. row major

B. matix major

C. column major

ANSWER: A

Which data structure is best suited for performing undo and redo operation?

A. Queue

B. Stack

C. Tree

D. Array

ANSWER: B

Which queue does not follow strict fifo rules?

A. Priority Queue

B. Double Ended Queue

C. Circular Queue

D. Input Restricted Queue

ANSWER: A

What can we said about the array representation of a circular queue when it contain only one element?.

A. Front=Rear=NULL

B. Front=Rear-1

C. Front=Rear+1

D. Front=Rear

ANSWER: D

A single array A[1..MAXSIZE] is used to implement two stacks. The two stacks grow from opposite ends of the array. Variables top1 and top2 (topl< top 2) point to the

location of the topmost element in each of the stacks. If the space is to be used efficiently, the condition for "stack full" is _____.

A. (top1 = MAXSIZE/2) and (top2 = MAXSIZE/2+1)

B. top1 + top2 = MAXSIZE

C. (top1= MAXSIZE/2) or (top2 = MAXSIZE)

D. top1= top2 -1

ANSWER: D

To evaluate an expression without any embedded function calls _____.

A. One stack is enugh

B. Two stacks are needed

C. no stack required

D. none of all

ANSWER: A

Following is an incorrect pseudocode for the algorithm which is supposed to determine whether a sequence of parentheses is balanced

declare a character stack

while (more input is available)

{

  read a character

  if (the character is a '(')

    push it on the stack

else if (the character is a ')' and the stack is not empty)

pop a character off the stack

else

print "unbalanced" and exit

}

print "balanced"

Which of these unbalanced sequences does the above code think is balanced?

A. ((())

B. ())(()

C. (()()))

D. (()))()

ANSWER: A

How many stacks are needed to implement a queue. Consider the situation where no other data structure like arrays, linked list is available to you.

A. 1

B. 2

C. 3

D. 4

Answer: B

Consider the following pseudo code

void fun(int n)

{

  IntQueue q = new IntQueue();

  q.enqueue(0);

  q.enqueue(1);

  for (int i = 0; i < n; i++)

  {

```
    int a = q.dequeue();

    int b = q.dequeue();

    q.enqueue(b);

    q.enqueue(a + b);

    ptint(a);

  }

}
```

Assume that IntQueue is an integer queue. What does the function fun do?

A. Prints numbers from 0 to n-1

B. Prints numbers from n-1 to 0

C. Prints first n Fibonacci numbers

D. Prints first n Fibonacci numbers in reverse order.

ANSWER: C

Suppose implementation supports an instruction REVERSE, which reverses the order of elements on the stack, in addition to the PUSH and POP instructions. Which one of

the following statements is TRUE with respect to this modified stack?

A. A queue cannot be implemented using this stack.

B. A queue can be implemented where ENQUEUE takes a single instruction and DEQUEUE takes a sequence of two instructions.

C. A queue can be implemented where ENQUEUE takes a sequence of three instructions and DEQUEUE takes a single instruction.

D. A queue can be implemented where both ENQUEUE and DEQUEUE take a single instruction each.

Answer: C

Which one of the following is an application of Queue Data Structure?

A. When a resource is shared among multiple consumers.

B. When data is transferred asynchronously (data not necessarily received at same rate as sent) between two processes

C. Load Balancing

D. All of the above

Answer: D

A program P reads in 500 integers in the range [0..100] representing the scores of 500 students. It then prints the frequency of each score above 50. What would be the

best way for P to store the frequencies?

A. An array of 50 numbers

B. An array of 100 numbers

C. An array of 500 numbers

D. A dynamically allocated array of 550 numbers

Answer: A

Let A be a square matrix of size n x n

C = 100

for i = 1 to n do

  for j = 1 to n do

  {

    Temp = A[i][j] + C

    A[i][j] = A[j][i]

    A[j][i] = Temp - C

  }

for i = 1 to n do

  for j = 1 to n do

    Output(A[i][j]);

Consider the following program. What is the expected output?

A. The matrix A itself

B. Transpose of matrix A

C. Adding 100 to the upper diagonal elements and subtracting 100 from diagonal elements of A

D. None of the above

Answer: A