### PROGRAMMINGMCQ’S

1.Srishti writes a program to find an element in the array A(5) with following elements in order .8 30 40 45 70.she runs the program to find a number X.X is found in the first iteration of binary search, What is value of X?

**40**

8

70

30

2. The maximum number of nodes on level I of a binary tree is which of the following?

(Root is Level 1)

2^I-1

3^I-1

**2^I**

2^-1

3. A language has 28 different letters in total.Each word in the language is composed of maximum 7 letters. You want to create a data-type to store a word of this language you decide to store the word as an array of letters. How many bits will you assign to the data-type to be able to store all kinds of the language

7

**35**

28

196

4. Vrinda writes an sufficient program to tow square diagonal matrices (matrices with elements only on diagonal).The size of each matrix is nXn. What is the time complexity

Of vinnda’s algorithm?

**(n^2)**

n)

V(n\*log(n))

None of these

5. Function print\_me(integer n ) // Statement 1

{

If (n <1 ) return // Statement 2

Print n // Statement 3

Print\_me(n-1) // Statement 4

Pooja has written the following code to print numbers form 0 to n in reverse order using the recursive approach. Find if there exists any error in the given code.

Statement 1

**Statement 2**

Statement 3

There is no error

6. A complete binary tree with the property that we value at each node is atleast as large as the values at its children is know as.

**Binary Search Tree**

AVL Tree

Completely Balanced Tree

Heap

7. The average time required to perform a successful sequential search for an element in an array A(1: n)is given by

**(n+1)/2**

log2n

n(N+1)/2

n^2

8.Neha wants to write a program that converts a decimal number into a binary number. Which of the following data structures should she use toimplement the same?

**Queue**

Stack

Array

Linked list

9. Smithi wants to make a program to print the sum of square of the first 5 whole number (0...4) She writes the following program.

Intger I = - // statement 1

Integer sum = 0 // statement 2

While ( I< 5 ) // statement 3

{

Sum = i\*I // statement 4

I = I -1 // statement 5

}

Print sum // statement 6

Is her program correct? If not which statement will you modify tocorrect it?

No error. the program is correct.

Statement 1

Statement 6

**Statement 4**

10. Consider the following pseudo-code

Class brush

{

Privet:

Integer size, colourcode

Function getdata() {….} // statement 1

Public

Integer name // statement 2

Function putdata() {….}

}

Function main

{

Brush b1.b2

Print b1.name // statement 3

B2. getdata() // statement 4

}

Deleting which line will correct the error in the code?

Statement 1

**Statement 2**

Statement 3

Statement 4

11.Shravali writes the following program:

Integer i = 0,j

While ( i< 2)

{

j =0;

while ( j<= 3\*i)

{

Print j

Print blank space

J = j +3

}

Print end of line // takes the cursor to the next line

I = I + 1

}

What will be the output of the program?

0

0 3

**0 3**

**0 3 6**

**0 3 6**

0 3 6 9

0 3 6 9 12

12. Which one of the following is the lowest level format to which the computer converts a higher language program before execution?

English code

**Machine code**

Assembly language

System language

13. Function g(int n)

{

If (n > 0) return 1:

Else return -1;

}

Function f(int a, int b)

{

If (a > b) return g (a-b);

If (a < b) return g(-b+a);

Return 0;

}

If f (a,b) is called what is returned?

Always + 1

**1 if a > b, -1 if a < b, 0 otherwise**

-1 if a > b, 1 if a < b, 1 if a < b, 0 otherwise

0 if a equals b, -1 otherwise

14. Atzalwrite a piece of code, Where a set of three lines occur around 10 times in different parts of the program. What programming concept can he use to shorten his program code length?

Use for loops

**Use functions**

Use array

Use classes

15.\_\_\_\_\_\_\_is the compile time binding whereas\_\_\_\_\_ is run time of function

function overriding, function overloading

Abstraction, Encapsulation

**Function overloading, function overriding**

Vanes form program to program

16. Consider the following pseudo-code

Class rocket

{

Private:

Integer height,weight

Public: // statement 1

function input( int a ,int b)

{

Height = a;

Weight = b;

}

}

function main ()

{

rocket rocket1. Rocket2

}

What can we from this code?

rocket is a class with rocket1 and rocket2 as its objects. Height and weight are attributes of a rocket.

**rocket is a class with rocket1 and rocket2 as its attributes. Height and weight are attributes of a rocket.**

rocket is a class with rocket1, rocket2, height and weight as its attributes

rocket is a class with rocket1, rocket2, weight and weight as its objects

17. Integer a = 40,b = 35, c = 20, d = 10

Comment about the output of the following two statements:

Print a \* b / c – d

Print a \* b / (c – d)

**Differ by 80**

Same

Differ by 50

Differ by 160

18. A destructor may be invoked in which of the following situations?

When the object is created

When the object assigned value 0.

Only at the end of the code

**When the scope of the object is over**

19. There are loops which are nested. This implies which one of the following?

Two loops, one after the other

**Two loops, one inside the other**

One loops with two different iteration counts

Tow loops with the same iteration count

20. A sort which uses the binary tree concept such that any number in the tree is lager than all the numbers in the subtree below it. Is called

Selection Sort

Insertion Sort

**Heap Sort**

Quick Sort

21.Which of the following options is exception to being a part of composite data types?

Union

Array

Structure

**Stack**

22.In an implementation of a linked list. Each node contains data and address. Which of the following could the address filed possibly contain?

**Address of next node in sequence**

It’s own of last node

Address of last node

Address of first node

23. Ravi is writing program in C++ C++ uses the ‘for’ keyword for loops. Due to distraction. Ravi writes ‘gor’ instead of ‘for’. What will this result fo?

The code will not give an error while in execution

**The code will not compile**

The code may work for some inputs and not for others

It will create no problems

24. Consider an array which bubble sort is used. The bubble sort would compare the element add to which of the following elements in a single iteration?

A[X+1]

**A[X+2]**

A[X+2X]

All of these

25. Sorting is not possible by using which of the following methods?

**Insertion**

Selection

Exchange

Deletion

26. A pseudo-code is used. Assume that when two data-types are processed through an operator, the answer maintains the same data-types as the input data-types. Assume that all data-types have enough range to accommodate any number. If two different data-types are operated on, the result assumes the more expressive data-type.

Passage:

What will be the output of the following pseudo-code statements?

integer a=456, b, c, d=10

b = a/d

c = a-b

print c

410

410.4

411.4

**411**

**27.** Choose the correct answer

Passage:

What is implied by the argument of a function?

**The variables passed to it when it is called**

The value it returns on execution

The execution code inside it

Its return type

**28.** Tanuj writes the code for a function that takes as input n and calculations the sum of first n natural numbers

function sum(n)

{

if(??)

return 1

else

return(n + sum(n-1))

end

}

Fill in ?? in the code.

**n equals**

n equals 2

n>=1

n>1

29. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ returns a value unlike \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Procedure, Subroutine

Procedure, Function

**Function, Method**

Function, Procedure

30. There are two loops which are nested. This implies which one of the following?

Two loops, one after the other

**Two loops, one inside the other**

One loop with two different iteration counts

Two loops with the same iteration count

Choose the correct answer. A pseudo-code which is similar to that of C++ and self-explanatory. An accessible member function or data member for an object is accessed by the statement objectname.functionname or objectname.datamembername respectively.

Passage:

Consider the following pseudo-code

class rocket

{

private:

integer height, weight

public:

function input(int a, int b)

{

height = a;

weight = b;

}

}

function main()

{

rocket rocket1, rocket2

}

What can we infer from this code?

**rocket is a class with rocket1 and rocket2 as its objects, height and weight are attributes of a rocket.**

rocket is a class with rocket1 and rocket2 as its attributes height and weight are objects of the class rocket.

rocket is a class with rocket1, rocket2, height and weight as its attributes.

rocket is a class with rocket1, rocket2, height and weight as its objects.

Choose the correct answer

Passage:

Afzal writes a piece of code, where a set of three line around 10 times in different parts of the program. What programming concept can be used to shorten his program code length?

Use for loops

**Use functions**

Use arrays

Use classes

Choose the correct answer

Passage:

In an implementation of a linked list, each node contains data and address. Which of the following could the address field possibly contain?

**Address of next node in sequence**

Its own address

Address of last node

Address of first node

Yashi wants to implement priority queues using arrays. What is the minimum number of arrays that she should use to serve the purpose?

1

**2**

3

4

Choose the correct answer

Passage:

Saloni writes the code for a function that takes as input n, an even integer and calculates the sum of first n even natural numbers.

function sum(n)

{

if(n equals 2)

return 2

else

return(n + sum(n-2))

end

}

She then calls the function by the statement, sum(30), How many times will the function sum be called to compute this sum?

1

30

**15**

6

Choose the correct answer

Passage:

A destructor may be invoked in which of the following situations?

When the object is created

When the object is assigned value 0.

Only at the end of the code

**When the scope of the object is over.**

Choose the correct answer

Passage:

A variable cannot be used…

**Before it is declared**

After it is declared

in the function it is declared in

Can always be used

Choose the correct answer

Passage:

A sort, which uses the binary tree concept such that any number in the tree is larger than all the numbers in the subtree below it is called

Selection sort

Insertion sort

**Heap sort**

Quick sort

Choose the correct answer

Passage:

A is an empty stack. The following operations are done on it.

PUSH(1)

PUSH(2)

POP

PUSH(5)

PUSH(6)

POP

What will the stack contain after these operations? (Top of the stack is underlined)

5 6

**1 5**

5 6

1 5

38, Choose the correct answer

Passage:

In breadth-first search, which of the following options is true?

Beginning from a node, first all its adjacent nodes are traversed.

Beginning from a node, each adjacent node is fully explored before traversing the next adjacent node.

**Beginning from a node, nodes are traversed in cyclical order**

None of these

39, Choose the correct answer

Passage:

Which of the following options describe a tree?

An unconnected

A connected graph

**A connected acyclic graph**

A complete graph

Choose the correct answer

Passage:

A full binary tree with n non-leaf nodes contains

(log n)nodes

**n + 1 nodes**

2n+1 nodes

2n nodes

Choose the correct answer

Passage:

While calculating time complexity of an algorithm, the designer concerns himself/herself primarily with the run time and not the compile time. Why?

Run time always more than compile time.

Compile time is always more than run time.

Compile time is a function of run time.

**A program needs to be compiled once but can be run several times.**

Choose the correct answer

Passage:

Shahaana has a 10,000 line code. She is trying to debug it. She knows there is a logical error in the first 25 lines of the code. Which of the following options will be an efficient way of debugging?

Compile the whole code and step into it line by line

**Use an interpreter on the first 25 lines**

Compile the whole code and run it

None of these

Choose the correct answer

Passage:

Pankaj and Mythili were both asked to write the code to evaluate the following expression:

a – b + c/(a – b) + (a – b)2

Pankaj writes the following code statements (Code A):

print (a – b) + c/(a – b) + (a-b)\*(a b)

Mythili writes the following code statements (Code B)

d = (a – b)

print d + c/d + d\*d

If the time taken to load a value in a variable, for addition, multiplication or division between two operands is same, which of the following is true?

**Code A uses lesser memory and is slower than code B**

Code A uses lesser memory and is faster than code B

Code A uses more memory and is faster than code B

Code A uses more memory and is slower than code B

Choose the correct answer

How is the Bubble Sort algorithm different from the modified Bubble Sort algorithm?

Former uses more space than the latter

Former is comparatively easier to implement in terms of codes

**Former does not stop comparing once the array is sorted unlike the latter**

There is no different the two

Choose the correct answer

Passage:

As part of the maintenance work, you are entrusted with the work of rearranging the library books in a shelf in proper order, at the end of each day. The ideal choice will be

Bubble Sort

**Insertion Sort**

Selection Sort

Heap Sort

Choose the correct answer

Passage:

Srujan writes a sorting algorithm. The algorithm takes different amount of time to sort, two different lists of equal size. What is the possible different between the two lists?

All numbers in one list are more than 100, while in the other are less than 100.

**The ordering of numbers with respect to magnitude in the two list has different properties.**

One list has all negative number, while the other has all positive numbers.

One list contains 0 as an element, while the other does not.

47, Number '1' is a:

**a) Prime number** b) Composite number c) Positive integer d) Both A and C

program

Given an integer N, Print N lines in a following manner

For Eg: N=4

1

3\*2

4\*5\*6

10\*9\*8\*7

The input to the method or class**NumberPattern**should contain the integer N

Assume( 1<=N<=100)

**Testcase 1:**

N=3

1

3\*2

4\*5\*6

**Testcases 2:**

N=5

1

3\*2

4\*5\*6

10\*9\*8\*7

11\*12\*13\*14\*15

48, You are given an integer N and a start value start, print 2\*N lines in the following manner- if N=4 and start =3 ,then the pattern would be:

3

44

555

6666

555

44

3

49. The input to the method IncrementPatternPrint of class IncrementPattern shall consist of a positive integer start value start and an integer N(Assume 0<=N <=100).

Do not return anything from the method. Print the required pattern using System.out.print() or System.out.print().

Charlie has a magic mirror. The mirror shows right rotated version of a given word. To generate different right-rotations of a word. Write the word in a circle in clockwise order, then start reading from any given character in clockwise order till you have covered all the characters.

For example, in a word ”sample”. if we start with ‘P’, we get the right rotated word as “plesam”there are six such right rotations of “ sample “ including itself.

Test case1:

abc, cab

expected return value : 1

test case 2:

ab, aa

expected return value : -1

50. Write a program to print a pattern

1111112

3222222

3333334

5444444

5555556

7666666

Given an integer N. Print 2\*N lines in the following manner

If N=4,

1

2\*3

4\*5\*6

7\*8\*9\*10

7\*8\*9\*10

4\*5\*6

2\*3

1

The input to the method TrianglePattern shall contain an integer N. Assume(1<=N<=100)

Testcase:

N=3,

1

2\*3

4\*5\*6

4\*5\*6

2\*3

1

Given an integer array arr of len and k. Write a program to sort first k elements in ascending order and remaining elements in descending order.

The input to the method SortArray shall contain len and k. The method should the array of k elements in ascending order and remaining as descending order.

Testcase

Input: {1,2,3,4,5,6,7,8,9,10},10,5

Output: {1,2,3,4,5,10,9,8,7,6}

Choose the correct answer. A pseudo-code which is similar to that of C++ and self-explanatory. An accessible member function or data member for an object is accessed by the statement objectname.functionname or objectname.datamembername respectively.

Passage:

Consider the following pseudo-code

class brush

{

private:

integer size, colorcode

functiongetdata() {…} //Statement 1

public:

integer name //Statement 2

functionputdata() {…}

}

function main

{

brush b1,b2

print b1.name //Statement 3

b2.getdata() //Statement 4

}

Deleting which line will correct the error in the code?

Statement 1

Statement 2

Statement 3

**Statement 4**