1. What will be the output of the following code?

Points:0/1

1. Integer a, b, c, d

2. set a = 8, b = 7 , c = 4, d = 6

3. a = b + c – d

4. b = a + d – c

5. d = a + b + d

6.

7.print d

- ○ 3
- ○ 8
- ◉ **18**
- ○ 12

2. If a complete binary min- heap is made by including each integer in [1, 1023] exactly once. The depth of a node in the heap is the length of the path from the root of the heap to that node. Thus the root is at depth 0. The maximum depth at which integer 9 can appear:

Points:1/1

- ○ 9
- ○ None
- ◉ **log 9**
- ○ 8

3. What will be the output of the following pseudocode?

Points:0/1

Declare a, b, j

Set a = 6, b = 7

for (i = 9 to a + 1) Decrease i by 1 in each interation

   b = ((b * 3) / 2) + 3

   print b

End for

- ◉ **13 22 36**
- ○ 14 25 38 57
- ○ 11 20 34
- ○ 13 22 36 55

4. What will be the output of the following pseudo code?

Points:0/1

1. Integer arr1[10], n, ctr, p, q, r

2. set arr1[] = {1, 2, 3, 4, 5, 2, 6, 5, 9}, n = 9, ctr = 0

3. for(each p from 0 to n -1)

4. ctr = 0

5. for(each q from 0 to p – 2)

6. if(arr1[p] = arr1[q])

7. ctr = ctr + 1

8. end if

9. end for

10. for(each r from p + 1 to n – 1)

11. if(arr1[p] = arr1[r])

12. ctr = ctr + 1

13. end if

14. end for

15. if (ctr EQUALS 0)

16. print arr1[p]

17. end if

18. end for

🔘 **1 2 3 4 5 6 9**

⚪ 2 5

⚪ None of the mentioned options

⚪ 1 3 4 6 9

5. The process of accessing data stored in the tape is similar to manipulating data on a:

Points:1/1

⚪ Queue

⚪ Stack

🔘 **List**

⚪ Set

6. What will be the output of the following pseudo code for n = 91?

Points:0/1

1. int fun (int n)

2. if (n > 100)

3. return n – 10

4. return fun (fun (n + 11))

⚪ 121

🔘 **91**

⚪ 99

⚪ 110

7. How many times "A" will be printed?

Points:1/1

1. integer i, j

2. for(each i from 0 to 4)

3. for(each j from 0 to 3)

4. if(i > 1)

5. Jump out of the loop

6.end if

7. end for

8. Print A

9. End for

○ Four

◉ **Six**

○ Seven

○ Five

8. What will be the output of the following pseudocode?

Points:1/1

Integer a, b

Set a = 7

for (each b from 5 to 7)

  a = a + b

  a = a − 3

  print a

end for

◉ **9 12 16**

○ 9 12

○ 9 12 16 21

○ 7 9

9. What will be the output of the following pseudo code?

Points:0/1

  1. Integer i, j, sum

  2. set sum = 0

  3. for (i = 0 to 5)

  4. for (j = 0 to 2)

  5. sum = i * j

  6. end for

  7. end for

  8. print sum

◉ **10**

○ 15

○ 27

○ None of the mentioned options

10. What will be the output of the following pseudo code?

Points:0/1

  1. Integer num, temp, no, sum

  2. set num = 103, sum = 0

  3. while (num greater than 0)

  4. no = num mod 10

  5. sum = sum + no * 2

  6. num = num / 10

  7. end while

8. print sum

○ 18

◉ **6**

○ 8

○ 321

11. In which of the following cases, it is possible to have a min-heap / max -heap with seven distinct elements so that post order traversal of it gives the elements in sorted order?

Points:1/1

1.If there is a max-heap and we want descending order

2.If there is a min-heap and we want ascending order

3.It is not possible in any case

Choose the correct answer from the options given below.

◉ **Only 1**

○ Only 1 and 2

○ Only 2

○ Only 3

12. What will be the output of the following pseudocode?

Points:0/1

Integer m, n, o, p

Set m = 11, n = 13, o = 14, p = 1

n = n – 3 //line

if(n(MOD 2 EQUALS 0)

  m = m + p

  o = o – m

  print o

else

  m = m – p

  o = o + m

  print o

end if

if(n > 5)

  goto line

end if

[NOTE: MOD finds the remainder after the division of one number by another. For example, the expression "5 MOD 2" would evaluate to 1 because 5 divided by 2 leaves a quotient of 2 and a remainder of 1]

◉ **2 13 1**

○ 2 4 6

○ 2

○ 2 24

13. What will be the output of the following pseudo code?

Points:0/1

1.Declare x, y, i

2.Set x = 0, y = 2

3.for i = 6 to x

4.y = y * 1

5.Print y

6.i = i - 1

7.End for

○ None of the mentioned options

○ 2 4 8 16 32 64 64

○ 2 2 2 2

○ 4 8 16 32 64 128 128

14. What will be the output of the following pseudocode?

Points:0/1

Character str[7] = {'s', 'p', 'h', 'e', 'r', 'e'}

Integer x, y, r, length

Set r = 0

length = stringlength(str)

For(each x from 0 to l – 1)

   r=0

   for (each y from 0 to l – 1)

  if((x EQUALS y) AND (str[x] NOT EQUALS str[y]))

        r = 1

      Jump out of the loop

            end if

    end for

   if (r EQUALS 0)

  print str[x]

     end if

End for

[NOTE: string Length() function counts the number of characters in a given string and returns the integer value.]

○ e r e

○ p h e r

○ s p h

○ s p h e r e

15. What will be the output of the following pseudo code?

Points:0/1

  1. Integer a, b, count

  2. set a = 2, count = 0, b = 1

3. while (b < 121)

4. b = a * b

5. count = count +1

6. b = b + 1

7. end while

8. print count

- ○ 127
- ○ 6
- ○ 120
- ○ 7

16. Consider a Binary tree having two pointers for each of its children. These pointers are set to NULL if the corresponding child is empty. How many NULL pointers does a binary tree with 'N' nodes have?

Points:0/1

- ○ N
- ○ N+1
- ○ N-1
- ○ The number depends on the shape of the tree

17. Which of the following algorithms is easily adaptable to singly linked list?

Points:0/1

- ○ Merge sort
- ○ Quick sort
- ○ Insertion sort
- ○ All of the mentioned options

18. What will be the output of the following pseudocode?

Points:0/1

Integer p, q

Set q = 14

For (each p from 13 to 17)

 q = q MOD p

 print q

  if (q EQUALS 2)

    print q + 3

  end if

End for

[NOTE: MOD finds the remainder after the division of one number by another. For example, the expression "5 MOD 2" would evaluate to 1 because 5 divided by 2 leaves a quotient of 2 and a remainder of 1]

- ○ None of the mentioned options
- ○ 1 4 1 4 1
- ○ 1 4 3 1

○ 1 1 1 1 1

19. What will be the output of the following pseudo code?

  1. Integer x, y, z, a

  2. set x = 2, y = 1, z = 5

  3. a = (x AND y) OR (z + 1)

  4. print a

○ 5

○ 1

○ 2

○ 3

20. What will be the output of the following pseudocode?

integer p[5] = {10, 20, 30, 50, 70}

integer j

p[0] = p[4] / 7

p[3] = p[0] + p[2]

p[4] = p[0] + p[1] + p[3]

for (each j from 0 to 4)

  print p[j]

end for

○ None of the mentioned options

○ 10 20 30 40 70

○ 70 10 20 30 50

○ 10 20 30 50 70

21. Consider the program fragment given below:

1.Integer A[5][5], k, j;

2.For (k = 0; k < 5; ++k)

3.For (j = 0; j< 5; j++)

4.A[k][j] = A[j][k];

Which of the following is true regarding the given program fragment?

○ It doesn't alter the given matrix A.

○ None

○ It transposes the given matrix A.

○ It makes the given matrix A, symmetric.

22. What will be the output of the following pseudo code?

1.Integer n

2.Set n = 0, b

3.For (each n from 0 to 6)

4.n = n + 2

5.If (n EQUALS 5)

6.Print " Hello World"

7.Jump out of the loop

8. End for

9.Print n

A.3

B.2

C.1

D.5

- ○ 3

- ○ 1

- ○ 5

- ○ 2

23. What will be the output of the following pseudocode for a = 125?

Points:0/1

Integer fun1(integer a

  if(a < 4)

      return a – 5

  else

      return fun1((a/5 – 2)

  end if

End function fun1()

- ○ 2

- ○ 0

- ○ -3

- ○ 1

24. What will be the output of the following pseudocode for a = 45?

Points:0/1

Integer fun(Integer a)

  integer I

  if ((a MOD 12) > 9)

     fun (a-12)

     print a

  else

     for(each i from 4 to 6)

```
        a = a + i

        print a

            end for

     end if

   End function fun()
```

[NOTE: MOD finds the remainder after the division of one number by another. For example, the expression "5 MOD 2" would evaluate to 1 because 5 divided by 2 leaves a quotient 2 and a remainder of 1]

○ 49 54 60

○ None of the mentioned options

○ 45 49 54

○ 21 33 45 49

25. What will be the output of the following pseudocode?

```
Integer a, b, c

Set a = 7, b = 15, c = 18

a = a + 1

b = b – a   //line

if(b > 3)

    goto line

end if

Print b
```

○ 3

○ 4

○ 2

○ -1