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

Points:1/1

```
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]

- 1 4 3 1
- **None**
- 1 1 1 1 1
- 1 4 1 4 1

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

Points:0/1

```
Integer p, q, r
Set p = 5, q = 4, r = 0
while(1)
        r = p – q
        p = p + r
        if(p > 20)
  jump out of the loop
        else
  q = p – q
         end if
         print q
end while
```

[NOTE: while(1): It is an infinite loop which will run till a break statement is issued explicitly.]

- **2 8 4 16**
- None of the mentioned options

- 2 4 6 8
- 2 4 8 16

3. Consider an array "A" that contains following 14 elements: Points:1/1

66,33,40,22,55,88,60,11,80,20,50,44,77,30

If we try to sort the array using merge sort algorithm, then which of the following list will be obtained pass 4?

(note: Each pass of the merge sort algorithm will start at the beginning of the array A and merge pairs of sorted sub -arrays)

- 11,22,33,40,55,60,88,,20,44,50,80,77
- 11,20,22,30,33,40,44,50,55,60,66,77,80,88
- 33,66,22,40,55,88,11,60,20,80,44,50,30,70
- **22,33,40,20,11,55,60,88,66,44,50,80,30,77**

4. What will be the output of the following pseudocode? Points:0/1

```
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 21
- 9 12
- **9 12 16**
- 7 9

5. What will be the output of the following pseudo code for n = 6? Points:1/1

```
1. Integer x,  y, z, n
2. Se y = 2, z = 2
3. Read n
4. for(each x from 1 to n – 1)
5. Print z
6. Y = Y + 2
7. Z = Z + Y ;
8. end for
```

- 2 4 6 8 10
- 2 6 12 20 30
- **None of the mentioned options.**

- 2 6 10 14 18

6. 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 2
- **Only 3**
- Only 1
- Only 1 and 2

7. What will be the output of the following pseudocode? Points:1/1

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

8. What will be the output of the following pseudo code ? Points:0/1

1. Integer n, f0, f1, f, i
2. set n = 5, f0 = 0, f1 = 3
3. for(each i from 1 to n)
4. f = f0 + 1
5. Print f
6. f0 = f1
7. f1 = f
8. end for

- 1 4 3 7 3
- 1 4 3 2 5
- 1 4 2 5 7
- **1 4 2 5 3**

9. Which of the following algorithms can be used to calculate the shortest path between two nodes in a graph? Points:1/1

1.Prim's Algorithms

2.Kruskal's Algorithms

Choose the correct answer from the options given below

- only 1
- Neither 1 nor 2
- **only 2**
- only 1 and 2

10. What will be the output of the following pseudocode? Points:1/1

```
Integer p, q
Set p = 0
For (each q from 13 to 19)
  p = p + 5
  if(p equals 18)
      print "Welcome"
      jump out of the loop
  end if
End for
Print p
```

- Welcome 24
- 24
- **35**
- Welcome 35

11. 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
- **-3**
- 0
- 1

12. How many times will “A” be printed by the given pseudo code? Points:1/1

1. Integer I, j, k
2. for(each i = 0 to 4)
3. for(each j =0 to 2)
4. for(each k = 0 to j – 1)
5. print A
6. end for
7. end for
8. end for

- 15
- **12**
- 16
- 18

13. What will be the output of the following pseudo code for the following set of inputs? Points:1/1

1. Integer n1, n2, n3, a
2. n1 = a MOD 10
3. n2 = a MOD 2
4. n3 = a / 100
5. if(n1 + n2 > n3)
6. Print “ Inside 1st if”
7. else if(n1 + n2 + n3 > n3 + 3)
8. Print “ Inside 2nd if”
9. else if((n1 + n2) / n3 EQUALS 0)
10. print “Inside 3rd if”
11. else
12. print “ Last if”

INPUTS

1.a = 987

2.a = 341

3.a = 247

A.1 – Inside 1st if
2 – Inside 2nd if
3 – Inside 3rd if

C. 1 – Inside 2nd if
2 – Inside 3rd if
3 – Last if

B. 1 – Last if
2 – Inside 3rd if
3 – Inside 2nd if

D. 1 – Inside 2nd if
2 – Inside 3rd if
3 – Inside 1st if

- **D**

- B
- C
- A

14. Which of the following is the most appropriate data structure to print elements of a queue in reverse order? Points:1/1

- None of the mentioned options
- Linked - list
- **Stack**
- Tree

15. What will be the output of the following pseudocode? Points:1/1

```
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
```

- **10 20 30 40 70**
- None of the mentioned options
- 70 10 20 30 50
- 10 20 30 50 70

16. What will be the output of the following pseudocode? Points:0/1

```
Integer a, b, c
Set a = 37, b = 99
c = a – 1
b = b – c
a = ( c*100 ) + b
Print a
```

- 363
- 3699
- 3799
- **3663**

17. During insertion in a circular queue which of the following indicates that the queue is full? Points:1/1

- If front ! = 0 and rear = max – 1
- If front = 0 and rear = max + 1
- If (rear + 1) % max size = front
- **If rear ! = max – 1**

18. What will be the output of the following pseudocode? Points:1/1

Integer a, b, c, d, e

Set a = 35, b = 25

c = a MOD 10

d = b MOD 10

e = c * d

c = a / 10

d = (c * 100) + e

Print d

[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]

- 500
- 725
- **325**
- 125

19. Consider the program fragment given below: Points:1/1

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?

- None
- It doesn’t alter the given matrix A.
- It makes the given matrix A, symmetric.
- **It transposes the given matrix A.**

20. What will be the output of the following pseudocode? Points:1/1

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

- s p h
- **s p h e r e**
- e r e
- p h e r

21. What will be the output of the following pseudocode? Points:0/1

```
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
```

- 2
- **-1**
- 3
- 4

22. What will be the output of the following pseudo code? Points:1/1

```
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

- 1
- **2**
- 5
- 3

23. What will be the output of the following pseudocode? Points:1/1

Integer a, b, c, d

Set a = 15, b = 6, c = 3

d = b – a

a = a + d

d = a MOD c

Print a, d

[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]

- **6 0**
- 1 2
- 15 0
- 6 1

24. What will be the output of the following pseudocode? Points:1/1

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 4 6
- 2
- **2 13 1**
- 2 24

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

```
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]

- 45 49 54
- **49 54 60**
- None
- 21 33 45 49