Name:

Student ID:

IT 105 – Introduction to Programming

Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT)

First In-Semester Examination, September 2019

[Time – 1 Hour 30 Minute]
[Total Marks - 40]

Instructions:

- **There are 5 double sided pages (10 printed pages). Ensure that you have all the pages.**
- **Answer all question, writing clearly in the space provided. Answers outside the box will not evaluated.**
- **Write your answer only on the specific space provided for each question to answer.**
- **Write your name and student ID number clearly at top of each page. If you do not follow this you will get ZERO right away.**
- **You have 1 Hours 30 minutes to complete the test.**
- **All questions are self-explanatory and understanding of question is a part of evaluation.**
- **All header files for C program are presumable.**
- **No query regarding questions will entertained during examination by course instructor or invigilator.**
- **Last page is reserved only for rough work. Don't ask for any other sheets in the examination hall.**

Section 1
(20 x 1 = 20 Marks)

1. The requirement is to display the following string to console:

The saint said, "God is one".

Write the printf statement that will do the job?

printf("The saint said, \"God is one\".");

2. What is the output of the following program:

```
main()
{
        int a = 9, b = 10, c = 11;
        if (++a == b || ++b <= c)
                printf("%d %d %d", a, b, c);
        else
                printf("%d %d %d", ++a, ++b, ++c);
}
```

10, 10, 11

3. What is the output of following program?

```
main()
{
        int x = 3;
        int y = !x;
        int z = !y;
```

Name:

Student ID:

```
        printf("%d %d", y, z);
}
```

0, 1

4. What is the output of following program?

```
main()
{
   int a = 5, b = 2, c;
   c = (a > 5) && (++b > 1);
   printf("%d %d", c, b);
}
```

0, 2

5. What is the output of following program?

```
main()
{
        int x = 5;
        printf("%f", x/4);
}
```

1.000000

6. What is the output of following program?

```
 main()
{
        int x, y, count=0;
        for(x=0,y=5; (x++)<(y--); count++);
        printf("%d", count);
}
```

3

7. What is the output of following program?

```
main()
{
        int x, count=0;
        for(x=0; x<5; x++){
          switch(x%2){
            case 0: count++;
            case 1: count--;
           }
  }
        printf("%d", count);
}
```

-2

8. What is the output of following program?

```
main()
{
```

Name:

Student ID:

```
        int x = 3;
        for (;x--;);
        printf("%d", x);
}
```

-1

9. What is the output of following program?

```
main( )
{
        int i = 4, j = -1, k = 0, y, z ;
        y = i + 5 && j + 1 || k + 2 ;
        z = i + 5 || j + 1 && k + 2 ;
        printf ( "\ny = %d z = %d", y, z ) ;
}
```

y=1, z=1

10. What is the output of following program?

```
main(){
   int x = 13, y = 2;
   float z;
   z = x / y + 0.6;
   printf("%d\n", (int)z );
}
```

6

11. What is the output of following program?

```
main(){
   int x = 13, y = 2;
   int z, w;
   z = (w = x/y) ? x : y;
   printf("%d, %d", z, w );
}
```

13, 6

12. What is the output of following program?

```
main()
{
        int a=500,b=100,c;
        if(!a>=400)
                b=300;
                c=200;
        printf("b=%d c=%d", b, c);
}
```

Name:

Student ID:

b=100 c=200

13. What is the output of following program?

```
main()
{
  int i = 1, j = 1;
  for( ; j; printf("%d %d ",i, j))
    j = i++ <= 1;
}
```

2 1 3 0

14. What is the output of following program?

```
main( )
   {
  int i = 1, j = 1 ;
  for ( ; ; )
  {
    if ( i > 5 )
    break ;
    else
    j += i ;
    printf ( "\n%d", j ) ;
    i += j ;
  }
    }
```

2
5

15. What is the output of following program?

```
main(){
int a = 80, b = 85, c = 70, d = 75, e = 60;
printf("Average of 5 subjects is: %0.2f", (a + b + c + d + e)/5.0);
}
```

Average of 5 subjects is: 74.00

16. What is the output of following program?

```
main()
{
        if(!printf(""))
                printf("Okkk");
        else
                printf("Hiii");
}
```

Name:

Student ID:

Okkk

17. What is the output of following program?

```
main()
{
        if( (-100 && 100)||(20 && -20) )
                printf("%s","Condition is true.");
         else
                printf("%s","Condition is false.");
}
```

Condition is true

18. What is the output of following program?

```
main()
{
        int pn=100;
        if(pn>20)
        if(pn<20)
                        printf("Heyyyyy");
        else
                printf("Hiiiii");
        return 0;
}
```

Hiiiii

19. What is the output of following program?

```
int i;
main()
{
  int t;
  for (t=4;scanf("%d",&i)-t;printf("%d\n",i))
    printf("%d--", t--);
}
```

4--0
3--0
2--0
1--0
0--0

20. What is the output of following program?

```
main( )
    {
        int x = 4, y = 0, z;
        while ( x >= 0 )
```

Name:

Student ID:

```
        {
          x--;
          y++;
          if(x == y)
          continue ;
          else
          printf("\n%d %d", x, y);
        }
    }
```

3 1
1 3
0 4
-1 5

Section 2
(2 x 10 = 20 Marks)

1. The following program is intended to loop indefinitely to read in an integer ***n***, and print out the value of the sum from ***1 to n***, until the user enters ***0*** as the value of ***n***. However, there are many syntax errors and a few bugs that may cause running time errors and/or make the program not perform the intended task. Try to fix all of them by writing the correct statements. Do not fix anything that is correct.

```
1.    include "stdio.h"
2.    main()
3.    {
4.      int sum;
5.      int k;
6.      int n;
7.      while(true)
8.      {
9.           printf("Input an integer (0 to quit): ");
10.          scanf("%d", n);
11.          if(n==0) break;
12.          for(k=0;k<n; k++)
13.          {
14.             sum += k;
15.          }
16.          printf("The sum from 1 to %d is %d\\n", n, sum);
17.     }
18.  }
```

Name:

Student ID:

```
1.    include <stdio.h>
2.    main()
3.    {
4.      int sum=0;
5.      int k;
6.      int n;
7.      while(1)
8.      {
9.           printf("Input an integer (0 to quit): ");
10.          scanf("%d", &n);
11.          if(n==0) break;
12.          for(k=0;k<=n; k++)
13.          {
14.             sum += k;
15.          }
16.          printf("The sum from 1 to %d is %d\n", n, sum);
17.     }
18.  }
```

2. Visualize the following requirements using a flowchart and also write an algorithm (5 marks for each):

Yash and Mohan are two brothers. Their father bought a new car and asked the children to decide the number to be placed in the number plate. They were roaming in the garden thinking about the number that they should take for their new car. Suddenly they saw another car with number 5283. Yash told that they should take the maximum number formed by the combination of these digits. While Mohan thought to take the minimum number formed by the combination of these digits.

Input:
5283
Output:
8532
2358

Separate all the four digit numbers separately and compare two numbers XY (Y appended at the end of X) and YX (X appended at the end of Y). If XY is larger, then X should come before Y in output, else Y should come before. For example, let X and Y be 542 and 60. To compare X and Y, we compare 54260 and 60542. Since 60542 is greater than 54260, we put Y first.