



# Daffodil International University

Department of Computer Science & Engineering

Faculty of Science & Information Technology

Mid-Term Examination

Semester: Fall 2020

Course Code: CSE 122

Course Title: Programming & Problem Solving

Section: All

Batch: Day

Time: 2.0 hours

Full Marks: 25

**Answer all of the following Questions**

## Part – I(Expression Evaluation):

[3.0]

Evaluate the following expressions in detailed steps using the last 4 digits of your ID as the value of A, B, C & D consecutively. **If your ID is 191-15-9892 then A=9, B=8, C=9 & D=2. If there is a 0 in any of the last four digit of your ID then replace it with 2.** Remember all the variables here are integers and for every equation the initial value of A, B, C & D are same.

a)  $A = A +++ B * C \% D - A - -$

[1]

b)  $G = B \&\& A \& C \parallel D \mid D$

[1]

c)  $E = A * B * C \% - - C + A \&\& (!B)$

[1]

[6.0]

## Part – II(Error Finding & Bug Fixing):

- a) Mention how many errors you can find in the following code. Explain the errors as per your understanding **[If you write the exact errors like a compiler it will not be counted]** with line no. and why you think it as an error.

[4]

```
1. #include<stdio.h>
2. int main() ; {
3.     int a = 97;
4.     printf ( "The value of a = %c!\n" , a ) ;
5.     int b = a ++ ;
6.     printf ( "The value of a = %c and b = %-10d\n," b , a ) ;
7.     /* This is just a comment. Do not pay attention. printf (nothing). */
8.     return 0 ,
9. }
```

- b) Rewrite the code without any errors.

[2]

## Part – III(Output Tracing):

[4.0]

**[For answering this segment create a box in your answer script and imagine that the box is your output window of the compiler. Now write output for each code. If you are asked to take input from user then the input will always be the last two digits of your ID. ]**

a) 

```
#include<stdio.h>
int main() {
    int ID; // the last two digit of your Id
    scanf("%d", &ID);
    printf("Hello. I am %09d\n\tI am\n",ID);
    return 0;
}
```

b) 

```
#include<stdio.h>
int main() {
    int ID; // the last two digit of your Id
    ID = (ID % 5) + 97;
    if( ID % 2 == 0 ) ;
    printf("ID = %c\n\t", ID);
    if( ID % 2 == 1 ) ;
    printf("ID = %c\n\t", ++ID);

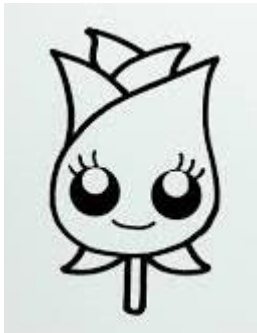
    return 0;
```

[2+2]

## Part IV(Full Program Writing):

[12.0]

*[Please read notes very carefully for each problem.]*



Rosy



Nosy

- a) **Rosy & Nosy** two character from two different worlds. So you may call them aliens. **Rosy** lost all her beautiful color and **Nosy** lost his beautiful mouth. They both are in deep sadness. They cry all day long. As they both have lost the most precious things from their life. Now they do wants to die. Unfortunately you cannot let them both die. Because if you do you will be punished for letting them both die. **Why?** I don't know. Ask **Rosy** and **Nosy**. Only they know. What I do know is how to save them. But you can only save one. To save **Rosy** you have to introduce yourself with her and say that, "Hello Rosy! I am **YOUR\_NAME\_HERE**. I want to be your friend and I will color your life again." If you want to save **Nosy** then you have to say that, "Hello Nosy! I am **YOUR\_NAME\_HERE**. I want to be your friend and I will find your face again." But the problem is they do not understand human language. **They understand only C programming.** Now write a C program to save **Rosy** if your ID is ODD or **Nosy** if your ID is even. *[For example: If my ID is 101-15-1004 which is an even number. I have to write a C program to Save Nosy.]*

*[Notes: Here for this problem there are no inputs. You have to write your own name in place of "YOUR\_NAME\_HERE".]*



- b) Things are getting weirder and weirder. You were sleeping. Suddenly someone was crying outside your door very loudly and was calling out your name more loudly. Of course your deep sleep broke and you were frightened. To make you more frightened the voice was saying that, "If you open the door I will take all the money from you. If you do not say who I am then I will break your door and

**come inside to take all the money as well as all the cloths you have.**” You are only allowed to ask one Question to identify me. And to help you I can say that I am not from this world. Now you also know that for some unknown reason **Nosy** can only say the ODD numbers and **Rosy** can only say the even numbers. So, you know what question to ask. Champ! Don’t you realize! You will ask the person to say a **number**. If the person says a number then you will know who it is. So, quickly write a C program to identify who is in front of the door so that you can go back to sleep again.

Sample Input	Sample Output
155	Hi! Nosy.

Sample Input	Sample Output
10	Hi! Rosy.

- c) Are you still here!!! That means you successfully detected the person in front of your door. Hmm! I am very happy to inform you that this is your task for today. And the task is to send both **Rosy** and **Nosy** to their home planet so that they cannot disturb us anymore. To send them both to their home planet you have to tell them “**Rosy & Nosy! Go back to your Home.**” But this message has to be printed in new lines for **N+10** times. What is this N? How do you determinate it? We’ll take the last three digit of your ID as input from user as **M**. Then perform **N = (M % 9)** and print the message **N+10 times**. [4.0]

Remember to print the new line after every message.

Sample Input	Sample Output
100	Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home. Rosy & Nosy! Go back to your Home.



GOOD LUCK 😊