Section 17 **PDS Lab Assignment - 2** **14.12.2020**

Data Types, Expressions, Operators, Control statements (if-else, switch-case)

Instructions:

1. **Create a directory named as *<rollno>_A2*, where *<rollno>* is your roll number .**
2. **Give the name of the programs as *<p>.c* , where *<p>* implies the problem number ,like *1.c , 2.c, 3.c* etc . Store all the programs under this Assignment in the directory *<rollno>_A2* .**
3. **Zip the entire directory *<rollno>_A2* .**
4. **You should upload your zipped file *<rollno>_A2.zip* to the Moodle course web page latest by 04:55 hrs.**

PART A

1. Execute the following program using codeblocks with different input values and try to understand the related concepts discussed in the theory class.

```
#include<stdio.h>
void main()
{
      int i=0,j =0;
      printf("Enter a value of i and j: ");
      scanf("%d%d", &i,&j);
      printf("\n \n --i = %d, i+j++ = %d, ++i+j = %d\n",
i,i+j++,++i+j);
}
```

Input: a) i = 5
b) i = -5 and j=5
c) i = 5.5 and j=4.9

2. Execute the following program using codeblocks. Analyse the output of each printf and check if the C compiler provides the expected output. Try to understand the related concepts discussed in the theory class.

```
#include <stdio.h>
int main()
{
      int d = 2147483647;
      int a = 125, b = 12345;
      long ax = 1234567890;
      short s = 4043;
      float x = 2.13459;
      double dx = 1.1415927;
      char c = 'W';
      unsigned long ux = 2541567890;
      printf("a + c = %d\n", a + c);
      printf("x + c = %f\n", x + c);
      printf("dx + x = %f\n", dx + x);
      printf("((int) dx) + ax = %ld\n", ((int) dx) + ax);
      printf("a + x = %f\n", a + x);
      printf("s + b = %d\n", s + b);
      printf("ax + b = %ld\n", ax + b);
      printf("s + c = %hd\n", s + c);
      printf("ax + c = %ld\n", ax + c);
      printf("ax + ux = %lu\n", ax + ux);
      printf("d + 1 = %d\n",d+1);
      return 0;
}
```

PART B (20 X 5 = 100)

1. A movie run in a theatre is documented in days. Write a C program to help the theatre owner to represent the days into number of years, weeks and days respectively. Assume there is no leap year (Input/output days).
(Example: 1329 days is split into 3 years, 33 weeks and 3 days respectively).

2. Read any four digit number from the keyboard. Print the number whose digits are in the reverse order to that of the input number. Print the absolute difference between the reversed and the input numbers. For example, if the number entered is 1234, then it will print the result 4321 and 3087.

3. Write a C program to find the entered character through the keyboard is digit, alphabet or special character?

4. Write a C program to implement a simple calculator. Input from the user will be two values and the operation the user wants to carry out. Use Switch case.

5. Write a C program to swap two integers using the following logics
(i) Using a temporary variable.
(ii) Without using temporary variable and using arithmetic operators.
(iii) Without using temporary variable and arithmetic operators. (hint: Use bitwise operators)
Input: x = 10 y = 5
Output: x = 5, y = 10