Name: **CP Lab - 3**   Duration: **3 Hrs**
Date: **3 Jan, 2022**   Maximum Marks: **15**

INSTRUCTIONS:

1. Please carefully read all assignment problems and write the required programs in the C language.
2. All the **PROBLEMS** are **COMPULSORY**.
3. **You should submit only a single C file containing all your answers. Make sure that during submission, no part of your code is commented.**
4. Name the file as follows: **S2021xxxxx_A3.c**
5. DO NOT zip. Upload a single .c file directly to your submission in the common Google classroom.
6. Don't share or copy the codes. If malpractice found, you will be awarded **Zero**.

If you do not follow the above-mentioned instructions, a strict penalty would be imposed.

ASSIGNMENT PROBLEMS

1. Read an integer, a floating-point number, a character and a string of length less than 15 characters from the keyboard and print the value of these variables. **[2 marks]**

2. Read any three digit integer from the user. Write a C program to count the sum of the three digit number and print the sum as the output. **[2 marks]**

3. Read three integers a, b and c from the user and do the following:
   i.   Pre-increment of a
   ii.   Add the result of (i) to the post-increment of c.
   iii. Post-decrement of b
   iv.   Subtract the result of (iii) from the pre-increment of c.
   Print the values of a, b and c before and after the execution. **[2 marks]**

4. Declare the variable a and b as data type int; variable c and d as data type float (initialize the values or use scanf function); variable z as float. Write a C program to evaluate the following expressions and print the result. **[3 marks]**

   i. $z = a + c / 4 * d / 3 + b$
   ii. $z = c + a / 4 * b / 3 + d$
   iii. $z = (int) c / a * b / 3$
   iv. $z = a / b * b \% 5 \% 3$

    v.   z = 10 - 5 - 7 / 4 * 4

   vi.   z = 24/(1 + 2%3 + 4/5 + 6 + 31%8)

5. Declare two integers A = 7 and B = 11. Write a C program to perform the following operations. **[3 marks]**

     i.   A Bitwise AND B
    ii.   A Bitwise OR B
   iii.   A Bitwise exclusive OR B
   iv.   A Left shift 2
    v.   B Right shift 4
   vi.   One's complement of B

6. A ball is released from a height of Y meters. Each time it bounces on the floor, its velocity becomes halved. Write a C program, which reads the value of Y and prints the total distance traversed by the ball when it touches the ground for the third time. Assume that the value of acceleration due to gravity, g, is 9.8. **[3 marks]**

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