

## Problem Solving through Programming in C

### Week 04 Assignment Solution

1. The control/conditional statements used in C is/are
  - a) if-else statements
  - b) switch statements
  - c) Both (a) and (b)
  - d) None of the above

Solution: (c) Both if-else and switch statements are conditional statements in C.

2. What is the output of the following C code?

```
#include <stdio.h>
int main()
{
    int x = 1;
    if (x == 0)
        if (x >= 0)
            printf("x=0\n");
        else
            printf("x=1\n");
    return 0;
}
```

- a) x=1
- b) x=0
- c) Depends on compiler
- d) No print statements

Solution: (d) x is initialized with 1 and the if statement compares it with 0, thus the if condition is false and the nested if statements do not get executed. Hence, the program does not print anything.

3. Compute the printed value of i of the C program given below

```
#include<stdio.h>
int main()
{
    int i=2;
    i=i++;
    printf("%d", i);
    return 0;
}
```

- a) 2
- b) 3
- c) 4
- d) Compiler error

Solution: (a) i++ is a post-increment operator. It assigns first and then increments the operator by one. Therefore i value after the assignment remains 2

4. If multiple conditions are used in a single if statement then the testing of those conditions are done

- a) From Right to Left
- b) From Left to Right
- c) Randomly
- d) None

Solution: (b) Multiple conditions are tested from Left to the right.

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5. What is the purpose of the given program? n is the input number given by the user.

```
#include <stdio.h>
int main()
{
    int n, x = 0, y;
    printf("Enter an integer: ");
    scanf("%d", &n);
    while (n != 0)
    {
        y = n % 10;
        x = x - y;
        n = n/10;
    }
    printf("Output is = %d", x);
    return 0;
}
```

- a) Sum of the digits of a number
- b) The negative sum of the digits of a number
- c) The reverse of a number
- d) The same number is printed

Solution: (b) Negative sum of the digits of a number

Please take a number and follow the operation step-by-step. You will be able to find the negative sum number as output.

6. while(1) is used in a program to create

- a) False statement
- b) Infinite loop
- c) Terminating the loop
- d) Never executed loop

Solution: (b) while(1) is used to create infinite loops.

7. What will be the value of a, b, c after the execution of the followings

```
int a=5, b=7, c=111;
c /= ++a * b--;
```

- a) a=5, b=6, c=2;
- b) a=6, b=7, c=1;
- c) a=6, b=6, c=2;
- d) a=5, b=7, c=1;

Solution: (c) ++a \* b-- is computed as (a=a+1)\*(b)  $\square$  (6)\*(7)=42

c/=42  $\square$  c=c/42  $\square$  c=111/42=2 (as c is integer)

Hence the right answer is a=6, b=6 and c=2

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8. What will be printed when the following C code is executed?

```
#include<stdio.h>
int main()
{
    if('A'<'a')
        printf("NPTEL");
    else
        printf("PROGRAMMING");
    return 0;
}
```

- a) NPTEL
- b) PROGRAMMING
- c) No output
- d) Compilation error as A and a are not declared as character variable

Solution: (a)

The ASCII value of 'A' is 65, which is lesser than the ASCII value of 'a' (i.e., 97). Therefore, if the condition is true, NPTEL is printed.

9. Switch statement accepts

- a) int
- b) char
- c) long
- d) All of the above

Solution: (d) Integer, character and long constants are accepted in switch statements.

10. What will be the output of the following program?

```
#include <stdio.h>
int main()
{
    int x = 1;
    switch (x)
    {
        case 1: printf("Choice is 1 \n");
        default: printf("Choice other than 1 \n");
    }
    return 0;
}
```

- a) Choice is 1
- b) Choice other than 1
- c) Both (a) and (b)
- d) Syntax error

Solution: (c)

Since the "break;" statement is not used after the print statement, it will execute the default instruction as well.