Week 4 Assignment Solution

1. What is the purpose of the "if-else" statement in C?
   a) To execute a block of code repeatedly.
   b) To declare variables and constants.
   c) To test a condition and execute different code based on the result.
   d) To perform mathematical calculations.

   Solution: (c) To test a condition and execute different code based on the result.

2. What is the correct syntax for an "if-else" statement in C?
   a) if condition { statement1; statement2; } else { statement3; }
   b) if condition then { statement1; } else { statement2; }
   c) if (condition) { statement1; } else { statement2; }
   d) if condition then statement1; else statement2;

   Solution: (c) if (condition) { statement1; } else { statement2; }

3. Which of the following is true about nested "if-else" statements?
   a) They are not allowed in C.
   b) The "else" part is mandatory for every "if" statement.
   c) They allow you to test multiple conditions and execute different blocks of code based on the results.
   d) Nested "if-else" statements are only allowed up to two levels deep.

   Solution: (c) They allow you to test multiple conditions and execute different blocks of code based on the results.

4. What happens if there is no "else" part in an "if-else" statement?
   a) The program will not compile.
   b) The program will crash at runtime.
   c) If the condition is true, nothing happens; if the condition is false, the program crashes.
   d) If the condition is true, the program executes the code inside the "if" block; if the condition is false, nothing happens.

   Solution: (d) If the condition is true, the program executes the code inside the "if" block; if the condition is false, nothing happens.

5. Which of the following operators can be used to combine multiple conditions in an "if" statement?
   a) && (logical AND)
   b) || (logical OR)
   c) ! (logical NOT)
   d) All of the above

   Solution: (d) All of the above

6. 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

7. 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 of the above

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

8. 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

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

9. 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) □ (6)*(7)=42
c/=42 □ c=c/42 □ c=111/42=2 (as c is integer)
Hence the right answer is a=6, b=6 and c=2

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.