Week 4 : Assignment 4

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.

Yes, the answer is correct.
Score: 1

Accepted Answers:
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;

Yes, the answer is correct.
Score: 1

Accepted Answers:
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.

Yes, the answer is correct.
Score: 1

Accepted Answers:
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.

Yes, the answer is correct.
Score: 1

Accepted Answers:
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

No, the answer is incorrect.
Score: 0

Accepted Answers:
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

Yes, the answer is correct.
Score: 1

Accepted Answers:
a) 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

Yes, the answer is correct.
Score: 1

Accepted Answers:
b) From Left to right

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

Yes, the answer is correct.
Score: 1

Accepted Answers:
b) The negative sum of the digits of a number

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;

Yes, the answer is correct.
Score: 1

Accepted Answers:
c) a=6, b=6,c=2;

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

Yes, the answer is correct.
Score: 1

Accepted Answers:
c) Both (a) and (b)

Week 4 : Programming Assignment 1

Write a C Program to Find the Smallest Number among Three Numbers (integer values) using Nested IF-Else statement.

Sample Test Cases

	Input	Output
Test Case 1	90 -9 -80	-80 is the smallest number.
Test Case 2	100 200 0	0 is the smallest number.
Test Case 3	80 40 90	40 is the smallest number.
Test Case 4	77 88 -99	-99 is the smallest number.

```c
#include <stdio.h>
int main()
{
    int n1, n2, n3;
    scanf("%d %d %d", &n1, &n2, &n3); /* where three number are read from the test cases
```

```c
if (n1<n2)
    {
        if(n1<n3)
            printf("%d is the smallest number.", n1);
        else
            printf("%d is the smallest number.", n3);
    }
    else
    {
        if(n2<n3)
            printf("%d is the smallest number.", n2);
        else
            printf("%d is the smallest number.", n3);
    }
}
```

Week 4 : Programming Assignment 2

The length of three sides are taken as input. Write a C program to find whether a triangle can be formed or not. If not display “This Triangle is NOT possible.” If the triangle can be formed then check whether the triangle formed is equilateral, isosceles, scalene or a right-angled triangle. (If it is a right-angled triangle then only print Right-angle triangle do not print it as Scalene Triangle).

Sample Test Cases

	Input	Output
Test Case 1	10 4 6	Triangle is not possible
Test Case 2	7 6 8	Scalene Triangle
Test Case 3	9 9 9	Equilateral Triangle
Test Case 4	5 12 13	Right-angle Triangle

```c
#include<stdio.h>
int main()
{
    int a,b,c;
    scanf("%d %d %d",&a, &b, &c); /*The length of three sides are entered from the test cases */
```

```c
if(a<(b+c)&&b<(a+c)&&c<(a+b))
    {
        if(a==b&&a==c&&b==c)
        printf("Equilateral Triangle");
          else if(a==b||a==c||b==c)
          printf("Isosceles Triangle");
          else
    if((a*a)==(b*b)+(c*c)||(b*b)==(a*a)+(c*c)||(c*c)==(a*a)+(b*b))
        printf("Right-angle Triangle");
        else if(a!=b&&a!=c&&b!=c)
        printf("Scalene Triangle");
    }
    else
    printf("Triangle is not possible");
}
```

Week 4 : Programming Assignment 3

Write a program to find the factorial of a given number using while loop.
Sample Test Cases

	Input	Output
Test Case 1	11	The Factorial of 11 is : 39916800
Test Case 2	7	The Factorial of 7 is : 5040
Test Case 3	5	The Factorial of 5 is : 120
Test Case 4	10	The Factorial of 10 is : 3628800

```
#include<stdio.h>
void main()
{
    int n;
    long int fact;  /* n is the number whose factorial we have to find and fact is the factorial */
    scanf("%d",&n);  /* The value of n is taken from test cases */
```

```
int i=1;
fact = 1;
while(i<=n)
    {
        fact*=i;
        i++;
    }
    printf("The Factorial of %d is : %ld",n,fact);
}
```

Week 4 : Programming Assignment 4

Write a Program to find the sum of all even numbers from 1 to N where the value of N is taken as input. [For example when N is 10 then the sum is 2+4+6+8+10 = 30]

Sample Test Cases

	Input	Output
Test Case 1	25	Sum = 156
Test Case 2	30	Sum = 240
Test Case 3	10	Sum = 30
Test Case 4	15	Sum = 56

```c
#include <stdio.h>
void main()
{
int N, sum=0;
scanf("%d", &N); /* The value of N is taken from the test cases */
```

```c
int i;
for (i = 1; i <= N; i++)
{
if (i % 2 == 0)
sum = sum + i;
}
printf("Sum = %d", sum);
}
```