

10th Class

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| Computer Science | Model Paper 5 | Paper: II |
| Time: 1.45 Hours | (Subjective Type) | Marks: 40 |

(Part-I)

2. Write short answers to any FOUR (4) questions: (8)

(i) What is Compiler?

Ans A compiler is a software that is responsible for conversion of a computer program written in some high level programming language to machine language code.

(ii) What are the types of comments in a C program?

Ans In C programming language, there are two types of comments:

1. Single-line Comments
2. Multi-line Comments

(iii) What is Integer-int (signed/unsigned)?

Ans Integer data type is used to store integer values (whole numbers). Integer takes up 4 bytes of memory. To declare a variable of type integer, we use the keyword int.

(iv) How we can Initialize Variable?

Ans Assigning value to a variable for the first time is called variable initialization. C language allows us to initialize a variable both at the time of declaration, and after declaring it.

(v) What are the main parts of scanf function?

Ans There are two main parts of scanf function:

1. First part inside the double quotes is the list of format specifiers.
2. Second part is the list of variables with & sign at their left.

(vi) What are Operators? Write down the basic operators of C language.

Ans Operators are the mathematical symbols that perform some operation on operands. Operands are the values or variables.

C language offers numerous operators to manipulate and process data.

Following is the list of some basic operator types:

(i) Assignment operator

- (ii) Arithmetic operator
- (iii) Logical operator
- (iv) Relational operator

3. Write short answers to any FOUR (4) questions: (8)

(i) What is *if statement*?

Ans C language provides *if statement* in which we specify a condition, and associate a code to it. The code gets executed if the specified condition turns out to be true, otherwise the code does not get executed.

(ii) What is the use of *if-else statement*?

Ans *If-else statement* executes the set of statements under *if statement*, if the condition is true, otherwise executes the set of statements under *else statement*.

(iii) Write down the output of the following code:

```
int x = 5, y = 7, z = 9;
if (x % 2 == 0)
    x++;
else
    x = y + z;
printf("x = %d\n", x);
if(x % 2 == 1 && y % 2 == 1 && z % 2 == 1)
    printf("All are Odd");
if (x > y || x < z)
{
    if (x > y)
        y++;
    else
        if (x < z)
            x++;
}
printf("x = %d, y = %d, z = %d", x, y, a);
```

Ans Output: x = 6, y = 7, z = 9.

(iv) Identify errors in the following code:

```
If (sum == 60 || product == 175)
    printf("Accept %c), sum);
```

Ans Errors: Wrong parenthesis is used in second line.
Wrong + operator is used in 5th line.

(v) Define data structure.

Ans Data structure is a container to store collection of data items in a specific layout.

(vi) Write most important property of an array?

Ans An important property of array is that it stores all the values at consecutive locations inside the computer memory.

4. Write short answers to any FOUR (4) questions: (8)

(i) What is the use of loop structure? Give an example.

Ans If we need to repeat one or more statements, then we use loops.

Example;

If we need to write Pakistan thousand times on the screen, then instead of writing `printf("Pakistan");` a thousand times, we use loops.

(ii) Write a code to add all the elements of an array having 100 elements.

Ans

```
int sum = 0;
for(int i = 0; i < 100; i++)
    sum = sum + a[i];
printf("The sum of all the elements of array is %d", sum);
```

(iii) Identify the error in the following code:

```
int count = 0;
for(int i = 4, i < 6; i--)
for (int j = i, j < 45; j++)
{
    count++;
    printf("%count", count);
}
```

Ans Error: Outer loop never be false.

(iv) int i,j;

```
float ar1[] = {1.1, 1.2, 1.3};
```

```
float ar2[] = {2.1, 2.2, 2.3};
```

```
for(i = 0; i < 3; i++)
```

```
    for(j = i; j < 3; j++)
```

```
        printf("%f\n", ar1[i] * ar2[j] * i * j);
```

Ans Output:

0.000000

0.000000

2.640000

5.520000

11.959999

(v) What is the use of function?

Ans Each program has a main function which performs the tasks programmed by the user. Similarly, we can write other functions and use them multiple times.

(vi) What is the use of return keyword?

Ans Inside the function, return is a keyword that is used to return a value to the calling function.

(Part-II) Babalilm

NOTE: Attempt any TWO (2) questions.

Q.5. Describe the purpose and formation of escape sequence. (8)

Ans Escape Sequence:

Purpose:

Escape sequences are used in *printf* function inside the "and". They force *printf* to change its normal behavior of showing output. Let's understand the concept of an escape sequence by looking at the following example statement:

```
printf ("My name is \"Ali\"");
```

The output of above statement is

My name is "Ali"

In the above example, \" is an escape sequence. It causes *printf* to display on computer screen.

Formation of escape sequence:

Escape sequences consist of two characters. The first character is always back slash (\) and the second character varies according to the functionality that we want to achieve. Back slash (\) is called escape character which is associated with each escape sequence to notify about escape. Escape character and character next to it are not displayed on screen, but they perform specific task assigned to them.

Following escape sequences are also commonly used in C language:

| Sequence | Purpose | Sequence | Purpose |
|----------|---------------------------|----------|--------------------------|
| \' | Displays Single Quote (') | \a | Generates an alert sound |
| \\ | Displays Back Slash (\) | \b | Removes previous char |

New Line (\n):

After escape character, n specifies movement of the cursor to start of the next line. This escape sequence is used to print the output on multiple lines. Consider the following example to further understand this escape sequence:

First Example:

```
#include <stdio.h>
void main ()
{
    printf ("My name is Ali. \n");
    printf ("I live in Lahore.");
}
```

Output:

```
My name is Ali.
I live in Lahore.
```

Second Example:

```
#include <stdio.h>
void main ()
{
    printf ("My name is");
    printf ("Ahmad");
}
```

Output:

```
My name is Ahmad
```

Tab (\t):

Escape sequence \t specifies the I/O function of moving to the next tab stop horizontally. A tab stop is collection of 8 spaces. Using \t takes cursor to the next tab stop. This escape sequence is used when user presents data with more spaces.

Q.6. Write a program that takes percentage marks of student as input and displays his grade. Following table shows grades distribution criteria. (8)

| Percentage | Grade |
|---------------|-------|
| 80% and above | A |
| 70% - 80% | B |
| 60% - 70% | C |
| 50% - 60% | D |
| Below 50% | F |

Ans #include<stdio.h>

void main ()

{

float percentage;

printf ("Enter the percentage: ");

scanf ("%f", &percentage);

if (percentage >= 80)

printf ("A\n");

else if (percentage >= 70)

printf ("B\n");

else if (percentage >= 60)

printf ("C\n");

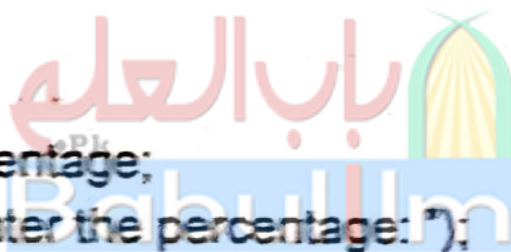
else if (percentage >= 50)

printf ("D\n");

else

printf ("F\n");

}



Q.7. Write a program that 5 times displays the numbers from 1 – 10 on computer screen. (8)

```
Ans #include<stdio.h>
void main()
{
    for(int i = 1; i <= 5; i++)
    {
        for(int j = 1; j <= 10; j++)
        {
            printf("%d", j);
        }
        printf("\n");
    }
}
```

