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Q1. What is the purpose of the main() function in a C program? Explain its significance.

The main() function is the entry point of every C program. When a program starts running, execution always begins from the main() function. It defines the sequence of actions to be performed by the program.

Significance:

Acts as the starting point of execution.

Returns an integer value to the operating system (0 usually means successful execution).

Without main(), the program cannot run.

Q2. Explain the difference between a variable declaration and a variable initialization in C.

Variable Declaration: Tells the compiler the name and type of the variable but does not assign it a value.

Example:

```
int age; // declaration only
```

Variable Initialization: Assigns an initial value to a variable at the time of declaration.

Example:

```
int age = 20; // declaration + initialization
```

Q4. What are the different data types available in C? Provide examples of each data type.

int – for whole numbers → `int x = 5;`

float – for decimal numbers → `float y = 3.14;`

double – for bigger decimal numbers → `double z = 99.99;`

char – for single characters → char grade = 'A';

void – means “nothing,” mostly used in functions.

Q5. Explain the concept of type conversions in C. Provide examples of implicit and explicit type conversions.

Type conversion means changing the data type of a variable's value.

Changing a value from one type to another.

Implicit (automatic): done by the computer.

```
int a = 10;
```

```
float b = a; // int changed to float
```

Explicit (manual): done by the programmer.

```
float x = 5.6;
```

```
int y = (int)x; // float changed to int
```

Q7. What is the role of the scanf() function in C? Provide an example of its usage.

scanf() is used to take input from the user (like typing from the keyboard).

Example:

```
#include <stdio.h>
```

```
int main() {
```

```
    int age;
```

```
    printf("Enter your age: ");
```

```
    scanf("%d", &age); // user types a number
```

```
printf("You are %d years old\n", age);  
return 0;  
}
```