

## C programming assignment Theory question

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

= When a C program starts or runs the execution always starts from main () it is compulsory in the C programming language .

It's significance

- Without main () the program has no starting point so the compiler won't run.

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

= Declaration variable- It tells the type of variable and the name.

Initialization variable- It assigns an initial value to the variable at the declaration process.

Q3. Write a C program to prompt the user for their name and display a personalized greeting message.

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

```
int main() {
```

```
char name[50];
```

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

```
scanf("%s", name);
```

```
printf("Hello, %s! Welcome to C programming.\n", name);
```

```
return 0;
```

```
}
```

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

= **int** → integers → int age = 25;

**float** → decimal numbers → float pi = 3.14;

**double** → large decimal numbers → double g = 9.81;

**char** → single character → char grade = 'A';

**void** → no value → void function();

**Derived types:** arrays, pointers, structures, unions.

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

=Implicit (Type Casting by compiler / type promotion):

```
int x = 10;
```

```
float y = x;
```

Explicit (Type Casting by programmer):

```
float a = 5.4;
```

```
int b = (int)a;
```

Q6. Write a C program to calculate the area of a rectangle. Prompt the user to enter the length and width, and display the result.

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

```
int main() {
```

```
    float length, width, area;
```

```
    printf("Enter length: ");
```

```
    scanf("%f", &length);
```

```
    printf("Enter width: ");
```

```
    scanf("%f", &width);
```

```
    area = length * width;
```

```
    printf("Area = %.2f\n", area);
```

```
    return 0;

}
```

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

= Used to take input from the user.

```
int height;

scanf("%d", &height);
```

Q8. Write a C program to convert temperature from Celsius to Fahrenheit. Prompt the user for a temperature in Celsius and display the equivalent temperature in Fahrenheit. (Formula:

$$\text{fahrenheit} = (\text{celsius} * 9 / 5) + 32$$

= #include <stdio.h>

```
int main() {

    float celsius, fahrenheit;

    printf("Enter temperature in Celsius: ");

    scanf("%f", &celsius);

    fahrenheit = (celsius * 9 / 5) + 32;

    printf("Temperature in Fahrenheit: %.2f\n", fahrenheit);

    return 0;

}
```

Q9. Input a number representing days and print the equivalent number of weeks and days.

(Example: 10 days = 1 week and 3 days)

= #include <stdio.h>

```
int main() {

    int days, weeks, remDays;
```

```
printf("Enter number of days: ");  
  
scanf("%d", &days);  
  
weeks = days / 7;  
  
remDays = days % 7;  
  
printf("%d days = %d week(s) and %d day(s)\n", days, weeks, remDays);  
  
return 0;  
  
}
```