

Week 3:

The image shows a screenshot of a web browser displaying a Moodle course page for 'REC-CIS'. The browser's address bar shows the URL: `rajalakshmicolleges.org/moodle/course/section.php?id=12`. The page has a sidebar on the left with a navigation menu including 'Site home', 'Site pages', 'My courses', and 'GE23131-PUC-2024'. The main content area lists several topics, each with a 'Done' button: 'Admission Eligibility', 'Calculator', 'Finding the Second Largest Element', 'Triangle - Smallest Side', 'Formal and Actual Arguments', 'Local and Global Variables', and 'Different categories of Functions'. Below this, a quiz attempt is shown for 'Admission Eligibility: Attempt 1'. The quiz question is: 'Write a C program to find the eligibility of admission for a professional course based on the following criteria: Marks in Maths >= 65, Marks in Physics >= 55, Marks in Chemistry >= 50, Or Total in all three subjects >= 180'. It includes sample test cases with input and output. The quiz is marked as 'Correct' with a score of 1.00. The browser's taskbar at the bottom shows the date as 15-01-2025 and the time as 16:02.

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Site home
Site pages
My courses
GE23131-PUC-2024
Participants
Competencies
Grades
General
Skill Test-01-MCQ & Coding
Lecture Notes
Week-01-Overview of C, Constants, Variables and Da...
Assessment-01-Overview of C, Constants, Variables ...

Admission Eligibility Done
Calculator Done
Finding the Second Largest Element Done
Triangle - Smallest Side Done
Formal and Actual Arguments Done
Local and Global Variables Done
Different categories of Functions Done

Question 1
Correct
Marked out of 1.00
Flag question

Write a C program to find the eligibility of admission for a professional course based on the following criteria:
Marks in Maths >= 65
Marks in Physics >= 55
Marks in Chemistry >= 50
Or
Total in all three subjects >= 180
Sample Test Cases
Test Case 1
Input
70 60 80
Output
The candidate is eligible
Test Case 2
Input
50 80 80

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Admission Eligibility: Attempt 1

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Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main()
{
    int a,b,c;
    scanf("%d%d%d",&a,&b,&c);
    if ((a>=65&&b>=55&&c>=50) || (a+b+c)>=180)
        printf("The candidate is eligible");
    else
        printf("The candidate is not eligible");
    return 0;
}
```

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Admission Eligibility: Attempt 1

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	Input	Expected	Got	
✓	70 60 80	The candidate is eligible	The candidate is eligible	✓
✓	50 80 80	The candidate is eligible	The candidate is eligible	✓

Passed all tests! ✓

Save the state of the flags

Finish review

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Admission Eligibility: Attempt 1

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Question 1
Incorrect
Marked out of 1.00
☐ Flag question

Complete the calculator program with Basic operations (+, -, *, /, %) of two numbers using switch statement.

Sample Test Cases

Test Case 1

Input

45
45
+

Output

Result: 45 + 45 = 90.000000

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Answer: (penalty regime: 0 %)

```
int main()
{
    int a,b;
    char c;
    float r;
    scanf("%d%d%c",&a,&b,&c);
    switch(c)
    {
        case '+': { r=a+b; printf("Result : %d + %d = %.6f",a,b,r); break;}
        case '-': { r=a-b; printf("Result : %d - %d = %.6f",a,b,r); break;}
        case '*': { r=a*b; printf("Result : %d * %d = %.6f",a,b,r); break;}
        case '/': { r=a*1.0/b; printf("Result : %d / %d = %.6f",a,b,r); break;}
        case '%': { r=a%b; printf("Result : %d %% %d = %.6f",a,b,r); break;}
        default: { printf("Invalid operator."); break;}
    }
    return 0;
}
```



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Question 1
Correct
Marked out of 1.00
☐ Flag question

You are given a sequence of integers as input, terminated by a -1. (That is, the input integers may be positive, negative or 0. A -1 in the input signals the end of the input.)
-1 is not considered as part of the input.

Find the second largest number in the input. You may not use arrays.

Sample Test Cases

Test Case 1

Input

-840 -288 -261 -337 -335 488 -1

Output

-261

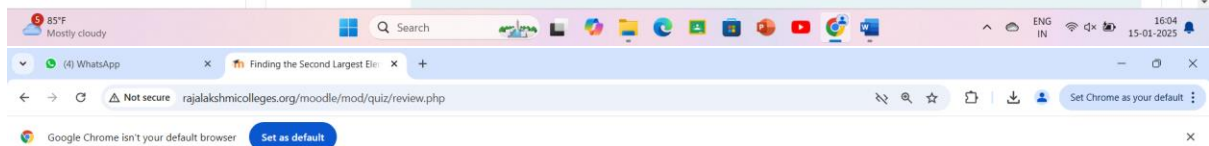
Test Case 2

Input

-840 -335 -1

Output

-840



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-840

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
#include<limits.h>
int main()
{
    int n;
    int largest=INT_MIN;
    int seclargest=INT_MIN;

    while(1)
    {
        scanf("%d",&n);
        if(n==-1)
            break;
        if(n>largest)
        {
            seclargest=largest;
            largest=n;
        }
    }
}
```



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```
}
else if(n>seclargest&& n<largest)
    seclargest=n;
}

if(seclargest==INT_MIN)
    printf("No sec largest num");
else
    printf("%d",seclargest);
return 0;
}
```

	Input	Expected	Got	
✓	-840 -288 -261 -337 -335 488 -1	-261	-261	✓
✓	-840 -335 -1	-840	-840	✓

Passed all tests! ✓

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Question 1
Correct
Marked out of 1.00
☐ Flag question

The lengths of the sides of a triangle X, Y and Z are passed as the input. The program must print the smallest side as the output.

Input Format:

The first line denotes the value of X.
The second line denotes the value of Y.
The third line denotes the value of Z.

Output Format:

The first line contains the length of the smallest side.

Boundary Conditions:

$1 \leq X \leq 999999$
 $1 \leq Y \leq 999999$
 $1 \leq Z \leq 999999$

Example Input/Output 1:

Input:
40

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Output:
15

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main()
{
    int a,b,c;
    scanf("%d%d%d",&a,&b,&c);
    if (a==b&&a==c)
        printf("%d",a);
    else if (a<b&&a<c)
        printf("%d",a);
    else if (b<c)
        printf("%d",b);
    else
        printf("%d",c);
    return 0;
}
```

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ENG
IN

16:05
15-01-2025

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	Input	Expected	Got	
✓	40 30 50	30	30	✓
✓	15 15 15	15	15	✓

Passed all tests! ✓

Save the state of the flags

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15-01-2025



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Question 1
Correct
Marked out of 1.00
☐ Flag question

An argument is an expression which is passed to a function by its caller in order for the function to perform its task. It is an expression in the comma-separated list bound by the parentheses in a function call expression.

A function may be called by the portion of the program with some arguments and these arguments are known as actual arguments (or) original arguments.

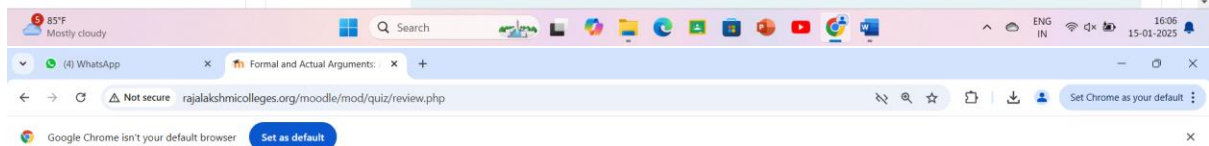
Actual arguments are local to the particular function. These variables are placed in the **function declaration** and **function call**. These arguments are defined in the **calling function**.

The parameters are variables defined in the function to receive the arguments.

Formal parameters are those parameters which are present in the **function definition**.

Formal parameters are available only within the specified function. Formal parameters belong to the **called function**.

Formal parameters are also the local variables to the function. So, the formal parameters are occupied memory when the function execution starts and they are destroyed when the function execution completed.



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Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int sum(int);
int main()
{
    int number;
    scanf("%d",&number);
    printf("Sum of %d natural numbers = %d\n",number,sum(number));
    return 0;
}
int sum(int value)
{
    int i,total=0;
    for(i=1;i<=value;i++)
    {
        total=total+i;
    }
    return(total);
}
```



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Formal and Actual Arguments

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```
int i,total=0;
for(i=1;i<=value;i++)
{
    total=total+i;
}
return(total);
```

	Input	Expected	Got	
✓	5	Sum of 5 natural numbers = 15	Sum of 5 natural numbers = 15	✓

Passed all tests! ✓

Save the state of the flags

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Local and Global Variables: Att

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Finish review

Started Monday, 23 December 2024, 5:33 PM

Completed Wednesday, 30 October 2024, 11:25 PM

Duration 53 days 18 hours

Question 1

Correct

Marked out of 1.00

☐ Flag question

A local variable is declared inside a function.

A **local variable** is visible only inside their function, only statements inside function can access that local variable.

Local variables are declared when the function execution started and local variables gets destroyed when control exits from function.

Let us consider an example:

```
#include <stdio.h>
void test();
int main()
{
    int a = 22, b = 44;
    test();
    printf("Values in main() function a = %d and b = %d\n", a, b);
    return 0;
}
```


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Answer: (penalty regime: 0 %)

```
#include<stdio.h>
void test();

int main()
{
    int a=9,b=99;
    test();
    printf("Values in main() function a = %d and b = %d\n",a,b);
    return 0;
}

void test()
{
    int a=5,b=55;
    printf("Values in test() function a = %d and b = %d\n",a,b);
}
```

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	Expected	Got	
✓	Values in test() function a = 5 and b = 55	Values in test() function a = 5 and b = 55	✓
	Values in main() function a = 9 and b = 99	Values in main() function a = 9 and b = 99	
Passed all tests! ✓			

Question 2

Correct

Marked out of 1.00

☐ Flag question

Global variables are declared outside of any function.

A **global variable** is visible to any every function and can be used by any piece of code.

Unlike **local variable**, **global variables** retain their values between function calls and throughout the program execution.

Let us consider an example:

```
#include <stdio.h>
int a = 20; // Global declaration
void test();
int main()
```

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Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int a=20;
void test();

int main()
{
    printf("In main() function a = %d\n",a);
    test();
    a=a+15;
    printf("In main() function a = %d\n",a);
    return 0;
}

void test()
{
    a=a+20;
    printf("In test() function a = %d\n",a);
}
```

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	Expected	Got	
✓	In main() function a = 20	In main() function a = 20	✓
	In test() function a = 40	In test() function a = 40	
	In main() function a = 55	In main() function a = 55	

Passed all tests! ✓

Question 3

Correct

Marked out of 1.00

☐ Flag question

Local variables are declared and used **inside a function** (or) in a **block of statements**.

Local variables are created at the time of function call and destroyed when the function execution is completed.

Local variables are accessible only within the particular function where those variables are declared.

Global variables are declared outside of all the function blocks and these variables can be used in all functions.

Global variables are created at the time of program beginning and reside until the end of the entire program.

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Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int x=15;

void changel(int x)
{
    printf("In changel() function x = %d\n",x);
}

void change2()
{
    printf("In change2() function x = %d\n",x);
}

int main()
{
    int x=10;
    printf("In main() function x = %d\n",x);
    changel(x);
}
```

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```
int main()
{
    int x=10;
    printf("In main() function x = %d\n",x);
    changel(x);
    change2();
    printf("In main() function x = %d\n",x);
    return 0;
}
```

	Expected	Got	
✓	In main() function x = 10	In main() function x = 10	✓
	In changel() function x = 10	In changel() function x = 10	
	In change2() function x = 15	In change2() function x = 15	
	In main() function x = 10	In main() function x = 10	

Passed all tests! ✓

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Show one page at a time

[Finish review](#)

Question 1

Correct

Marked out of 1.00

☐ Flag question

All the **C** functions can be called either with **arguments** or without arguments in a C program. These functions may or may not **return values** to the calling function.

Depending on the **arguments** and **return values** functions are classified into 4 categories.

1. Function without arguments and without return value
2. Function with arguments and without return value
3. Function without arguments and with return value
4. Function with arguments and with return value

When a function has **no arguments**, it does not receive any data from the calling function.

Similarly, when a function **does not return a value**, the calling function does not receive any data from the called function.

In effect, there is no data transfer between the calling function and the called function in the category **function without arguments and without return value**.

Let us consider an example of a function without arguments and without return value:

```
#include <stdio.h>
void india_capital(void);
int main()
{
```

REC-CIS

[Reset answer](#)

```
#include <stdio.h>

void india_capital();

int main()
{
    india_capital();
    return 0;
}

void india_capital()
{
    printf("New Delhi is the capital of India\n");
}
```



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	Expected	Got	
✓	New Delhi is the capital of India	New Delhi is the capital of India	✓

Passed all tests! ✓

Question 2
Correct
Marked out of 1.00
☐ Flag question

Write a C program to demonstrate functions without arguments and without return value.

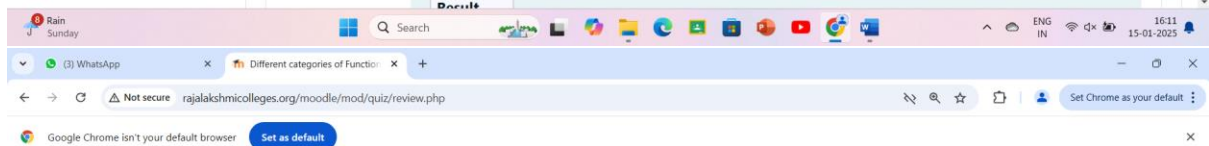
Write the functions **print()** and **hello()**.

The output is:

```
*****  
Hello! REC  
*****
```

For example:

Result



REC-CIS

Reset answer

```
#include <stdio.h>  
// Write the functions  
void print()  
{printf("*****\n");}  
  
void hello()  
{printf("Hello! REC\n");}  
  
int main()  
{  
    print();  
    hello();  
    print();  
    return 0;  
}
```



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	Expected	Got	
✓	...***...	...***...	✓
	Hello! REC	Hello! REC	
	...***...	...***...	

Passed all tests! ✓

Question 3
Correct
Marked out of 1.00
☐ Flag question

When a function definition has **arguments**, it receives data from the calling function.

The **actual arguments** in the function call must correspond to the **formal parameters** in the function definition, i.e. the number of actual arguments must be the same as the number of formal parameters, and each actual argument must be of the same data type as its corresponding formal parameter.

The **formal parameters** must be valid variable names in the function definition and the **actual arguments** may be variable names, expressions or constants in the function call.

The variables used in actual arguments must be assigned values before the **function call** is made. When a function call is made, copies of the values of actual arguments are passed to the **called function**.

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Reset answer

```
#include <stdio.h>

void largest(int, int);

int main()
{
    int a, b;
    scanf("%d%d", &a, &b);
    largest(a,b); // Correct the code
    return 0;
}

void largest(int x,int y)
{
    // Correct the code
    if (x>y)
    {
        // Correct the code
    }
}
```

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	Input	Expected	Got	
✓	27 18	Largest element = 27	Largest element = 27	✓
✓	13 17	Largest element = 17	Largest element = 17	✓

Passed all tests! ✓

Question 4
Correct
Marked out of 1.00
☐ Flag question

Fill the missing code to understand the concept of a function with arguments and without return value.

Note: Take π value as 3.14

The below code is to find the area of circle using functions.

For example:

Input	Result
11.23	Area of circle = 395.994476

REC-CIS

Reset answer

```
#include <stdio.h>

void area_circle(float);

int main()
{
    float radius;
    scanf("%f", &radius);
    area_circle(radius);
    return 0;
}

void area_circle(float r)
{
    float area; //Correct the code
    area=3.14*r*r; // Write the code to calculate the area of circle
    printf("Area of circle = %f\n", area);
}
```

REC-CIS

	Input	Expected	Got	
✓	11.23	Area of circle = 395.994476	Area of circle = 395.994476	✓

Passed all tests! ✓

Question 5
Correct
Marked out of 1.00
☐ Flag question

When a function has **no arguments**, it does not receive any data from the calling function.

When a function **return a value**, the calling function receives data from the called function.

Let us consider an example of a function without arguments and with return value:

```
#include <stdio.h>
int sum(void);
int main()
{
    printf("\nSum of two given values = %d\n", sum());
    return 0;
}
```

REC-CIS

Reset answer

```
#include <stdio.h>

int sum(void);

int main()
{
    printf("Sum of two given values = %d\n", sum());
    return 0;
}

int sum()
{
    int a,b,sum; // Fill in the missing code
    scanf("%d%d",&a,&b); // Read two integers
    sum=a+b; // Find sum
    return sum; // Return sum
}
```


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	Input	Expected	Got	
✓	9 5	Sum of two given values = 14	Sum of two given values = 14	✓
✓	45 78	Sum of two given values = 123	Sum of two given values = 123	✓

Passed all tests! ✓

Question 6
Correct
Marked out of 1.00
☐ Flag question

When a **function definition** has arguments, it receives data from the calling function.

After taking some desired action, only one value will be returned from **called function to calling function** through the return statement.

If a function returns a value, the **function call** may appear in any expression and the returned value used as an operand in the evaluation of the expression.

Let us consider an example of a function with arguments and with return value:

```
#include <stdio.h>
int largest(int, int, int);
int main()
```

REC-CIS

Reset answer

```
#include <stdio.h>

int largest(int, int, int);

int main()
{
    int a, b, c;
    scanf("%d%d%d", &a, &b, &c);
    printf("Largest of the given three numbers = %d\n", largest(a,b,c)); //
Correct the code
    return 0;
}

int largest(int x,int y,int z)
{
    // Correct the code
    if (x>y&&x>z)
    {
```

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	Input	Expected	Got
✓	99 49 29	Largest of the given three numbers = 99	Largest of the given three numbers = 99
✓	45 67 35	Largest of the given three numbers = 67	Largest of the given three numbers = 67

Passed all tests! ✓

Question **7**
Correct
Marked out of 1.00
☐ Flag question

Fill in the missing code in the below code to understand about function with arguments and with return value.

The below code is to find the factorial of a given number using functions.

For example:

Input	Result
3	Factorial of a given number 3 = 6

Answer: (penalty regime: 0 %)

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[Reset answer](#)

```
#include <stdio.h>

int factorial(int);

int main()
{
    int number;
    scanf("%d", &number);
    printf("Factorial of a given number %d = %d\n", number,
factorial(number));
    return 0;
}

int factorial(int x)
{
    int i, fact = 1;
    for (i=2; i<=x; i++)
    {
```

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	Input	Expected	Got	
✓	3	Factorial of a given number 3 = 6	Factorial of a given number 3 = 6	✓

Passed all tests! ✓

Question 8

Correct

Marked out of 1.00

☐ Flag question

Write a C program to demonstrate functions without arguments and with return value.

The below code is used to check whether the given number is a prime number or not.

Write the function **prime()**.

Sample Input and Output:

5
The given number is a prime number

For example:

Answer: (penalty regime: 0 %)

[Reset answer](#)

```
#include <stdio.h>

int prime(int);

int main()
{
    int n;
    scanf("%d", &n);
    if (prime(n) == 1)
    {
        printf("The given number is a prime number\n");
    }
    else
    {
        printf("The given number is not a prime number\n");
    }
    return 0;
}
```

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Reset answer

```
}
return 0;
}

int prime(int x)
{
    if(x<=1)
    {return 0;}
    for(int i=2;i<=x/2;i++)
    {
        if(x%i==0)
        return 0;
    }
    return 1;
}

// Write the function prime()
```

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// write the function prime()

	Input	Expected	Got	
✓	5	The given number is a prime number	The given number is a prime number	✓
✓	27	The given number is not a prime number	The given number is not a prime number	✓
✓	121	The given number is not a prime number	The given number is not a prime number	✓
✓	1	The given number is not a prime number	The given number is not a prime number	✓

Passed all tests! ✓

Save the state of the flags

Finish review