



Nagarjuna College of Engineering and Technology

(Autonomous Institute Affiliated to VTU)

Second Semester B.E. Degree SE Examination, Aug/Sep- 2024

Introduction to C programming

Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full questions from each module

Module - 1

a Define the following terms with an example for each

i. Algorithm

ii. Flowcharts

b What are variables explain how they are declared and initialized with an example

c Write a C program to demonstrate the use of printf and scanf statements to read and print values of variables of different data types.

COs M BL

CO1 4 L2

CO1 8 L2

CO1 8 L2

OR

a Explain a general structure of C program with an example.

CO1 8 L2

b What is a token? What are different types of tokens available in C language? Explain.

CO1 8 L2

Evaluate the following expressions:

i) $22 + 3 < 6 \&\& !5 \parallel 22 == 7 \&\& 22 - 2 > +5$

CO1 4 L23

ii) $a + 2 > b \parallel !c \&\& a == d * a - 2 < = e$ Where $a=11, b=6, c=0, d=7$ and $e=5$.

Module - 2

Explain the syntax and working of switch case statement. Write a C program to determine whether an entered character is Vowel or not.

CO2 10 L2

Develop a C program to find the largest of three numbers using ternary operator.

CO2 6 L3

Develop a program to convert an integer into the corresponding floating point number using Type casting.

CO2 4 L2

OR

Explain the different types of loops in C with syntax.

CO2 8 L2

Show how break and continue statements are used in a C-program, with example.

CO2 4 L2

Develop a C program to generate and plot the Pascal triangle.

CO2 8 L2

Module - 3

What is recursion? Develop a C program to print Fibonacci series using recursion.

CO3 8 L3

How 1D integer array is represented in memory? With the help of suitable example demonstrate the initializing the element.

CO3 6 L2

Develop a C program for binary search and analyze results with suitable examples.

CO3 6 L2

OR

Distinguish between Call by Value and Call by Reference using suitable example.

CO3 10 L4

- | | | | |
|---|---|-----|---|
| b | Define function. Develop a C program to add two integers using functions | CO3 | 6 |
| c | Define storage class explain the different storage classes supported by c | CO3 | 4 |

Module - 4

- | | | | |
|----|--|-----|---|
| 7a | How 2D array is represented in memory? Explain with suitable example. | CO4 | 8 |
| b | Develop a C program to sort the given set of N numbers using bubble sort | CO4 | 6 |
| c | What are strings? Mention the reading strings and writing strings along with their Syntax. | CO4 | 6 |

OR

- | | | | |
|----|---|-----|---|
| 8a | Develop a C program to implement matrix multiplication and validate the rules of multiplication | CO4 | 6 |
| b | With a neat diagram, Explain three dimensional array write a C program to read and display 2x2x2 array. | CO4 | 6 |
| c | Develop a C program to print the following pattern.
H
H E
H E L
H E L L
H E L L O
H E L L O
H E L L
H E L
H E
H | CO4 | 8 |

Module - 5

- | | | | |
|----|--|-----|---|
| 9a | What is a pointer? Discuss pointer arithmetic with suitable code. | CO5 | 8 |
| b | Using suitable code, Discuss the working of the following string functions
i. Strcat
ii. Strlen
iii. Strstr
iv. Strcmp | CO5 | 4 |
| c | Develop a C program to concatenate two strings without using built-in function. | CO5 | 8 |

OR

- | | | | |
|-----|--|-----|---|
| 10a | Develop a program using pointers to compute the Sum, Mean and Standard deviation of all elements stored in an array of N real numbers. | CO5 | 8 |
| b | Define structure. How structure is declared and initialized with suitable example. | CO5 | 6 |
| c | Develop a program to read details of students into structure student and display the same | CO5 | 6 |



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Introduction to C Programming

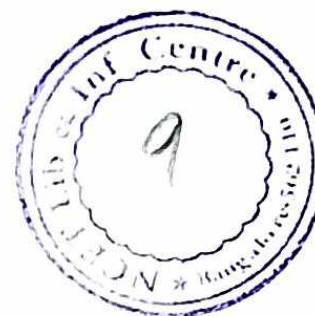
Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full question from each module

	Module - 1	COs	M	BL
1a	What is an algorithm? Write an algorithm for biggest of two number	1	7	2
b	Classify the different kinds of files associated with a C program. Give examples for each.	2	8	2
c	Interpret the output of the program below: main() { int x = 9876; float y = 98.7654; printf("\n%2d", x); printf("\n%10.2e", y); printf("\n%-7.2f", y); printf("\n%07.2f", y); }	2	5	5

```
main()
{
    int x = 9876;
    float y = 98.7654;
    printf("\n%2d", x);
    printf("\n%10.2e", y);
    printf("\n%-7.2f", y);
    printf("\n%07.2f", y);
}
```



OR

2a	Write a C program to swap two numbers without using third variable	1	7	2
b	What are variables? Explain the difference between variable declaration and initialization with an example.	2	8	2
c	Define variable and Classify the following as valid or invalid variable. If invalid give reasons	2	5	5

i) ncet18 ii) 18ncet iii) _ncet6 iv) -ncet6

Module - 2

3a	Outline the differences between type conversion and typecasting with an example for each.	2	7	4
b	What are iterative statements? List the differences between while loop and do-while loop with suitable examples.	2	7	2
c	Develop a C program to find division if we have three subject marks.	2	6	3

OR

4a	List the categories of operators supported in C and the properties of operators. Explain the mechanism for evaluating an expression involving more than one operator.	2	7	4
b	Compare the switch and if-else construct with syntax. List the advantages of using a switch statement.	2	7	2
c	Write a C program using for loop to print all the numbers from m to n thereby classifying them as even or odd.	2	6	3

Module - 3

5a	Define a function. List and explain the categories of user-defined functions with an example for any two.	5	8	2
b	Demonstrate passing an entire two-dimensional array to a function with a C program to find the transpose of a given matrix.	5	5	3
c	What is a one-dimensional array? Give the syntax and example for declaring one-dimensional array and initialize the same with suitable examples.	3	7	3

OR

6a	List and explain the different ways for passing parameters from one function to another with a suitable example.	5	8	2
----	--	---	---	---

- | | | | |
|---|--|---|---|
| b | Explain the concept of recursive functions. Write a C program to find the factorial of a number using recursion. | 5 | 5 |
| c | Demonstrate passing an entire array to a function with a program that invokes two C functions read_array and print_array to read and print a one-dimensional array of n numbers. | 3 | 7 |

Module - 4

- | | | | |
|----|---|---|----|
| 7a | Define strings. Explain with example the different ways of reading and writing strings. Write a C program to find the length of a string without using built-in function. | 3 | 10 |
| b | Briefly explain different types of pointers. Write a program to read a string and count the number of upper- and lower-case characters using pointers. | 4 | 10 |

OR

- | | | | |
|----|---|---|----|
| 8a | Explain with an example how an array of strings is represented in memory. List the different operations performed on character arrays. Write a C program to concatenate two strings and print the resultant string. | 3 | 10 |
| b | Define function. Write a C program to find the prime number using functions | 4 | 10 |

Module - 5

- | | | | | |
|----|---|---|----|---|
| 9a | Explain string input and output functions with example program. | 4 | 10 | 2 |
| b | List the set of functions in C to read data from files. Explain any two with suitable examples. | 5 | 10 | |

OR

- | | | | | |
|-----|--|---|----|----|
| 10a | Differentiate between structures and unions. Explain with syntax union declaration and initialization. | 4 | 10 | |
| b | List the set of functions in C to write data to files. Explain any two with suitable examples. | 5 | 10 | 3a |

b

c.

la.

b.

c.

a.

b.

c.



Time: 3Hrs.

Nagarjuna College of Engineering and Technology

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First Semester BE Degree SE Examination, Aug/Sep-2024

Introduction to C Programming

22ESC145



Note: Answer any one full question from each module.

Max. Marks: 100

Module – 1

- | | COs | M | BL |
|---|-----|---|----|
| 1a. Discuss different characteristics of computers along with basic organization of it. | CO1 | 8 | L2 |
| b. Explain the basic structure of a C program with an example. | CO1 | 6 | L1 |
| c. Illustrate few latest applications of computers. | CO1 | 6 | L3 |

OR

- | | | | |
|--|-----|---|----|
| 2a. Discuss different generations of computer along with disadvantages of each generation that led to the development of next computer generation. | CO1 | 8 | L2 |
| b. Discuss with neat diagram the functional parts of the computer. | CO1 | 8 | L2 |
| c. Explain variables and constants. | CO1 | 4 | L2 |

Module –2

- | | | | |
|--|-----|---|----|
| 3a. Show the conversion hierarchy of data types. Explain typecasting in an arithmetic expression. Write a program to illustrate typecasting of a floating point number into its corresponding integer. | CO2 | 6 | L3 |
| b. Outline the difference between break and continue statement. Illustrate the use of each with an example. | CO2 | 6 | L3 |
| c. List all conditional control statements used in C. Explain any two with syntax and example | CO2 | 8 | L1 |

OR

- | | | | |
|--|-----|---|----|
| 4a. Explain operator, List out various category of operators. | CO2 | 4 | L2 |
| b. Write a C program that reads from the user an arithmetic operator and two operands, perform the corresponding arithmetic operation on the operands using switch statement | CO2 | 8 | L3 |
| c. Write a C program using for loop to classify a given number as prime or composite. | CO2 | 8 | L2 |

Module –3

- | | | | |
|---|-----|---|----|
| a. Discuss function. Explain the different elements of a user-defined functions in detail. Give example. | CO3 | 8 | L1 |
| b. Write a c-program using function to check whether the given number is prime or not. | CO3 | 6 | L3 |
| c. What is a two-dimensional array? Give the syntax for declaring a two-dimensional array and initializing the same with suitable examples. | CO3 | 6 | L1 |

OR

- 6a. Write a C program to find the factorial of a number using functions CO3 6
- b. Write a C program to print the Fibonacci series using recursion. Read the number of terms in the series. CO3 8
- c. Mention the different operations to be performed on two dimensional arrays . CO3 6

Module -4

- 7a. Discuss string taxonomy in c language? What are the operations that can be performed on strings. CO4 6
- b. Write a C program to implement strcmp() , strcat() , strcpy() and strlen() CO4 6
- c. Explain the mechanism of passing arguments to functions using pointers. CO4 8
- Write a C program to swap two numbers using call by reference method.

OR

- 8a. Write a C program to count the number of vowels, consonants, digits, spaces and special characters in a given string. CO4 8
- b. Write a C program using pointers to compute the sum and average of all elements stored in an array of "n" natural numbers. CO4 6
- c. Write a C program to swap two numbers using call by address(pointers or reference) method. CO4 6

Module -5

- 9a. Explain structure. Discuss with example the general syntax of a structure. CO5 6
- b. How data elements are stored under unions, explain with example? CO5 6
- c. Explain file in C. Discuss the steps involved in using files in C. CO5 8

OR

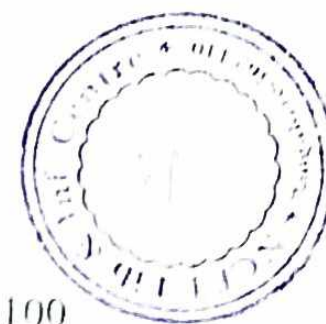
- 10a. Write the syntax for opening a file with various modes and closing a file. CO5 6
- b. Write a C program to copy the contents from one file to another file. CO5 6
- c. Discuss input and output operations on files with example. CO5 8



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Second Semester B.E. Degree SE Examination, Aug/Scp-2024
Introduction to C Programming

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Note: Answer any one full question from each module

Module - 1

COs M BL

- Explain the basic structure of a C program with a suitable example. CO1 05 L2
- What are identifiers? What are the rules to be followed while declaring a variable? CO1 05 L2
- What are tokens? Demonstrate any 3 tokens of C-language with suitable examples. CO1 10 L3

OR

What is an algorithm? Write an program and flowchart to find the biggest of two numbers CO1 05 L2

Define variables and classify the following as valid or invalid variables. If invalid give reasons CO1 05 L2

- i) 186ncet ii) -ncet iii) 186ncet186 iv) ncet168 v)ncet_168

List and explain all operators in C with an example. CO1 10 L3

Module - 2

Explain the syntax of the switch statement. CO2 05 L2

Write a C program to exchange (swap) contents of the 2 variables CO2 05 L2

Write Syntax of nested if-else statement and write a C program to check whether a given character is uppercase or lowercase. CO2 10 L3

OR

Write the syntax of a for loop with an example. CO2 05 L2

Explain printf() and scanf()function with syntax CO2 05 L2

Explain the syntax of the do-while loop and Write a C program to find the largest of three numbers. CO2 10 L3

Module - 3

What is an array? Explain the declaration and initialization of two-dimensional arrays. CO3 05 L1

What is Recursion? Write a program to find the factorial of a number using recursion. CO3 05 L2

Explain the syntax of a one-dimensional array and Write a C program to perform addition of two 1-D matrices. CO3 10 L3

OR

Write a program in C to Insert and Display the elements into an Array. CO3 05 L2

Write a C program adding two numbers using the call-by-reference method. CO3 05 L1, L2

- c. Explain the Syntax of function and Write a C program to add two numbers using with parameters and without a return value.

Module - 4

- 7a Explain in detail any two string-handling functions with suitable examples. CO4
- b Write a C program to compare two strings. CO4
- c Explain the syntax of a one-dimensional array and Write a C program to perform multiplication of two 2-D matrices. CO4

OR

- 8a Write a C program to find the length of the string. CO4
- b Write a C program to perform the Concatenation of given two strings. CO4
- c Write a C program to modify the given string from lower case to upper case and vice versa. CO4

Module - 5

- 9a Explain type defined structure CO5
- b What is structure? Explain the C syntax of structure declaration with example CO5
- c Show how a structure variable is passed as a parameter to a function with an example CO5

OR

- 10a Write a C program to sum of two numbers using pointers. CO5
- b Write a C program to swap (exchange) the values of two variables using a pointer. CO5
- c Write a C program to read n elements to an array and prints those elements using pointer to an array. CO5



Nagarjuna College of Engineering & Technology

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First Semester BE Degree SE Examination, March/April 2024

Introduction to C Programming

Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full question from each module

Module - 1

- | | COs | M | BL |
|--|-----|---|----|
| 1a Show the interaction between the different units of a computer with a neat diagram and summarize the operations of a computer. | CO1 | 7 | L2 |
| b Classify the different kinds of files associated with a C program. Give examples for each. | CO2 | 8 | L2 |
| c Interpret the output of the program below:
main()
{
int x = 9876;
float y = 98.7654;
printf("\n%2d", x);
printf("\n%10.2e", y);
printf("\n%-7.2f", y);
printf("\n%07.2f", y);
} | CO2 | 5 | L5 |

OR

- | | | | |
|---|-----|---|----|
| 2a Explain the areas in which computers are being applied to carry out routine and highly specialized tasks. | CO1 | 7 | L2 |
| b What are variables? Explain the difference between variable declaration and initialization with an example. | CO2 | 8 | L2 |
| c Find the output of the program below and justify your answer.
#include<stdio.h>
main()
{
int a, b;
scanf ("%2d %4d", &a, &b);
printf("\nThe two numbers are: %d and %d", a, b);
return 0;
} | CO2 | 5 | L5 |

Inputs:

1234 5678

Module - 2

- | | | | |
|---|-----|---|----|
| 3a Outline the differences between type conversion and typecasting with an example for each. | CO2 | 7 | L4 |
| b Explain iterative statements? List the differences between while loop and do-while loop with suitable examples. | CO2 | 7 | L2 |
| c Write a C program to enter the marks of a student in four subjects. Then calculate the total, average and display the grades according to the following rules using if-else-if statement: | CO2 | 6 | L3 |

Average marks

Grade

80 to 100

Distinction

60 to 79

First Class

50 to 59

Second Class

40 to 49

Third Class

0 to 39

Fail

- OR**
- 4a List the categories of operators supported in C and the properties of operators. CO2
 Explain the mechanism for evaluating an expression involving more than one operator.
- b Compare the switch and if-else construct with syntax. List the advantages of using a switch statement. CO2
- c Write a C program using for loop to print all the numbers from m to n thereby classifying them as even or odd. CO2

Module - 3

- 5a Discuss function. List and explain the categories of user-defined functions with an example for any two. CO5
- b Demonstrate passing an entire two-dimensional array to a function with a C program to find the transpose of a given matrix. CO5
- c Explain one-dimensional array? Give the syntax and example for declaring one-dimensional array and initialize the same with suitable examples. CO3

OR

- 6a List and explain the different ways for passing parameters from one function to another with a suitable example. CO5
- b Explain the concept of recursive functions. Write a C program to find the factorial of a number using recursion. CO5
- c Demonstrate passing an entire array to a function with a program that invokes two C functions read array and print array to read and print a one-dimensional array of n numbers. CO3

Module - 4

- 7a Discuss strings. Explain with example the different ways of reading and writing strings. Write a C program to find the length of a string without using built-in function. CO3
- b Briefly explain different types of pointers. Write a program to read a string and count the number of upper- and lower-case characters using pointers. CO4

OR

- 8a Explain with an example how an array of strings is represented in memory. List the different operations performed on character arrays. Write a C Program to concatenate two strings and print the resultant string. CO3
- b Discuss pointer? Explain how pointer variable is declared and initialized. Explain the mechanism for passing arguments to functions using pointers. Write a program to find the sum of all elements of an array using pointers. CO4

Module - 5

- 9a Explain with syntax structure declaration and initialization in C. Implement program in C to store and display the customer information (cust_id, name address and phone no) using a structure. CO4
- b List the set of functions in C to read data from files. Explain any two with suitable examples. CO5

OR

- 10a Differentiate between structures and unions. Explain with syntax union declaration and initialization. CO4
- b List the set of functions in C to write data to files. Explain any two with suitable examples. CO5



Nagarjuna College of Engineering & Technology

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Second Semester BE Degree SE Examination, March/April 2024

Introduction to C Programming

Time: 3Hrs.

Max. Marks: 100



Note: Answer any one full question from each module

Module - 1

Explain the basic structure of a C program with a suitable example.

COs	M	BL
CO1	05	L2

Differentiate between algorithm and flowchart with suitable examples.

CO1	05	L2
-----	----	----

List all the operators supported in C. Explain relational and logical operators in C with an example

CO1	10	L2
-----	----	----

OR

Define variables and discuss the rules for constructing the variables.

CO1	05	L2
-----	----	----

Explain printf () and scanf () function with suitable example.

CO1	05	L2
-----	----	----

Explain the C token with suitable examples.

CO1	10	L2
-----	----	----

Module - 2

Write a C program to find the largest of 3 numbers using an if-else statement.

CO2	05	L2
-----	----	----

Write a C program to exchange (swap) contents of the 2 variables

CO2	05	L2
-----	----	----

Write a C program to implement the working of a calculator using the switch statement.

CO2	10	L3
-----	----	----

OR

Explain the following with syntax and an example

CO2	05	L2
-----	----	----

i) if else

ii). Nested if

Explain the following with syntax and an example

CO2	05	L2
-----	----	----

i) if

ii) Nested if else

Explain the working of break, continue, and goto statements with a suitable example for each.

CO2	10	L2
-----	----	----

Module - 3

Explain the operations performed on a one-dimensional array.

CO3	05	L2
-----	----	----

Explain linear search and develop a C program to search the given elements using linear search.

CO3	05	L2
-----	----	----

Explain the syntax of a one-dimensional array and Write a C program to perform addition of two 1-D matrices.

CO3	10	L3
-----	----	----

OR

Write a program in C to Insert & Display the elements into an Array.

CO3	05	L2
-----	----	----

Write a C program adding two numbers using the call-by-values method.

CO3	05	L2
-----	----	----

Explain the Syntax of function and Write a C program to add two numbers using without parameters and without a return value.

CO3	10	L3
-----	----	----

Module - 4

Write a C program to find the length of the string.

CO4	05	L2
-----	----	----

Write a C program to modify the given string from upper case to lower case.

CO4	05	L2
-----	----	----

Explain the syntax of a one-dimensional array and Write a C program to perform addition of two 2-D matrices.

CO4	10	L3
-----	----	----

OR

Write a C program to compare two strings.

CO4	5	L2
-----	---	----

Explain the array of Strings with a suitable example

CO4	5	L2
-----	---	----

Explain the syntax of a one-dimensional array and Write a C program to perform

CO4	10	L3
-----	----	----

Multiplication of two 2-D matrices.

Module - 5

- 9a Explain type defined structure
- b Write a C program to read and display students information using structure
- c Demonstrate the concept array of structures with a suitable C program

CO5
CO5
CO5

OR

- 10a Write a C program to subtract of two numbers using pointers.
- b Write a C program to insert n elements to an array and displays those elements using pointer to an array.
- c Write a C program to swap (exchange) the values of two variables using a pointer.

CO5
CO5
CO5



Nagarjuna College of Engineering & Technology

(Autonomous Institute Affiliated to VTU)

First Semester BE Degree SE Examination, February 2024

Introduction to C Programming

Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full question from each module

Module - 1

COs	M	BL
CO1	7	L2
CO2	8	L2
CO2	5	L5

1a Show the interaction between the different units of a computer with a neat diagram and summarize the operations of a computer.

b Classify the different kinds of files associated with a C program. Give examples for each.

c Interpret the output of the program below:

```
main()
{
    int x = 9876;
    float y = 98.7654;
    printf("\n%2d", x);
    printf("\n%10.2e", y);
    printf("\n%-7.2f", y);
    printf("\n%07.2f", y);
}
```

OR

2a Explain the areas in which computers are being applied to carry out routine and highly specialized tasks.

b What are variables? Explain the difference between variable declaration and initialization with an example.

c Find the output of the program below and justify your answer.

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

```
main()
```

```
{
    int a, b;
    scanf ("%2d %4d", &a, &b);
    printf("\nThe two numbers are: %d and %d", a, b);
    return 0;
}
```

Inputs:

1234 5678

Module - 2

3a Outline the differences between type conversion and typecasting with an example for each.

b Explain iterative statements? List the differences between while loop and do-while loop with suitable examples.

c Write a C program to enter the marks of a student in four subjects. Then calculate the total, average and display the grades according to the following rules using if-else-if statement:

Average marks	Grade
80 to 100	Distinction
60 to 79	First Class
50 to 59	Second Class
40 to 49	Third Class

- 4a List the categories of operators supported in C and the properties of operators. CO2 7
- Explain the mechanism for evaluating an expression involving more than one operator.
- b Compare the switch and if-else construct with syntax. List the advantages of using a switch statement. CO2 7
- c Write a C program using for loop to print all the numbers from m to n thereby classifying them as even or odd. CO2 6

Module - 3

- 5a Discuss function. List and explain the categories of user-defined functions with an example for any two. CO5 8
- b Demonstrate passing an entire two-dimensional array to a function with a C program to find the transpose of a given matrix. CO5 5
- c Explain one-dimensional array? Give the syntax and example for declaring one-dimensional array and initialize the same with suitable examples. CO3 7

OR

- 6a List and explain the different ways for passing parameters from one function to another with a suitable example. CO5 8
- b Explain the concept of recursive functions. Write a C program to find the factorial of a number using recursion. CO5 5
- c Demonstrate passing an entire array to a function with a program that invokes two C functions read array and print array to read and print a one-dimensional array of n numbers. CO3 7

Module - 4

- 7a Discuss strings. Explain with example the different ways of reading and writing strings. Write a C program to find the length of a string without using built-in function. CO3 10
- b Briefly explain different types of pointers. Write a program to read a string and count the number of upper- and lower-case characters using pointers. CO4 10

OR

- 8a Explain with an example how an array of strings is represented in memory. List the different operations performed on character arrays. Write a C Program to concatenate two strings and print the resultant string. CO3 10
- b Discuss pointer? Explain how pointer variable is declared and initialized. Explain the mechanism for passing arguments to functions using pointers. Write a program to find the sum of all elements of an array using pointers. CO4 10

Module - 5

- 9a Explain with syntax structure declaration and initialization in C. Implement program in C to store and display the customer information (cust_id, name address and phone no) using a structure. CO4 10
- b List the set of functions in C to read data from files. Explain any two with suitable examples. CO5 10

OR

- 10a Differentiate between structures and unions. Explain with syntax union declaration and initialization. CO4 10
- b List the set of functions in C to write data to files. Explain any two with suitable examples. CO5 10



Nagarjuna College of Engineering & Technology

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Second Semester BE Degree SE Examination, September 2023

Introduction to C Programming



Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full questions from each module

Module - 1

- What is an algorithm? Write an algorithm for biggest of two number
- Explain C token with example
- Write a C program to swap two numbers without using third variable

COs	M	BL
CO1	4	L2
CO1	8	L2
CO1	8	L3

OR

- Write a C program to find the Simple Interest.
- Explain the Structure of C Program with an Example
- Define variable and Classify the following as valid or invalid variable. If invalid give reasons

CO1	4	L2
CO1	8	L2
CO1	8	L3

- i) ee25 ii) 25eet iii) _999net iv) -nc

Module - 2

- Write the syntax for formatted Input and Output statement
- List all the operators supported in C. Explain Relational and Logical Operators
- Write a C program for simple calculator (+, -, *, /)

CO2	4	L1
CO2	8	L2
CO2	8	L3

OR

- Define Compiler and Interpreter.
- Write the syntax of if else, nested if and switch conditional control statements used in C.
- Write a C program to find biggest of three subject marks.

CO2	4	L1
CO2	8	L2
CO2	8	L3

Module - 3

- Differentiate between while and for loop statements with syntax.
- Write a C program to print given number is Palindrome or not
- Write a C program to print a natural number using a do-while loop.

CO3	4	L1
CO3	8	L2
CO3	8	L3

OR

- Explain the following with an example. i) continue ii) goto
- Write a C program to sort the given array elements in ascending order by using Bubble sort.
- Give the syntax for declaring and initializing one-Dimensional arrays with a simple C program.

CO3	4	L2
CO3	8	L2
CO3	8	L3

Module - 4

- Distinguish between Actual and Formal Parameters.
- Define function. Write a C program to find the prime number using functions.

CO4	4	L2
CO4	8	L3

- | | | | |
|-----------|---|-----|---|
| c | Develop a C program to find max element in an array using functions. | CO4 | 8 |
| OR | | | |
| 8a | Distinguish between Global and Local Variables. | CO4 | 4 |
| b | Explain the difference between call by value and call by reference with an example. | CO4 | 8 |
| c | Write a C program to compute the factorial of a given Number using Recursion Function | CO4 | 8 |

Module - 5

- | | | | |
|-----------|--|-----|---|
| 9a | Write a C program to read and display students information using structure | CO5 | 4 |
| b | Write a C program to Concatenate two strings. | CO5 | 8 |
| c | Develop a C program to find the string palindrome | CO5 | 8 |
| OR | | | |
| 10a | Explain string input and output functions with example program. | CO5 | 4 |
| b | Write a C program sum of two numbers using pointers. | CO5 | 8 |
| c | Write a C program to reverse the string without using library function. | CO5 | 8 |

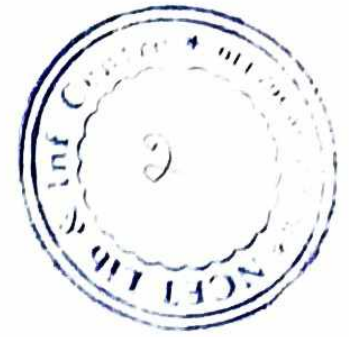


Nagarjuna College of Engineering & Technology

(Autonomous Institute Affiliated to VTU)

First Semester BE Degree SE Examination, September 2023

Introduction to C Programming



Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full question from each module.

Module – 1

- Discuss different characteristics of computers along with basic organization of it.
Give the picture of computer classification based on speed, data size and price.
Illustrate few latest applications of computers.

OR

- Discuss different generations of computer along with disadvantages of each generation that led to the development of next computer generation .
Discuss with neat diagram the functional parts of the computer.
Explain identifier (variable) and the rules to construct identifier (variable)? Classify the following as valid/invalid Identifiers. i) num2 ii) \$num1 iii) +add iv) a_2 v) 199_space vi) _apple vii) #12

Module –2

Illustrate type conversion? Explain two types of conversion with examples

Convert the following mathematical expression into C equivalent

i) $area = s(s-a)(s-b)(s-c)$

ii) $x = -b + b^2 - 4ac$

List all conditional control statements used in C. Explain any two with syntax and example

OR

Explain operator? List out various category of operators.

Write a C program that reads from the user an arithmetic operator and two operands, perform the corresponding arithmetic operation on the operands using switch statement

Discuss the differences between while loop and do-while loop. write a C program to find sum of Natural numbers from 1 to N using while loop.

Module –3

Explain function and different classification of user defined functions based on parameter passing and return type with examples.

Write a c-program using function to check whether the given number is prime or not.

Define array. Explain with suitable example how to declare and initialize 1- dimensional array

OR

Write a C program to find the factorial of a number using functions

Discuss accessing the elements of two dimensional array with an example

Mention the different operations to be performed on two dimensional arrays .

Module –4

Discuss string taxonomy in c language? What are the operations that can be performed on strings.

Write a C program to implement strcmp(), strcat(), strcpy() and strlen()

Describe pointer. Explain how the pointer variable declared and initialized?

OR

Write a C program to count the number of vowels, consonants, digits, spaces and special characters in a given string.

Write a C program using pointers to compute the sum and average of all elements stored in an array of "n" natural numbers.

Write a C program to swap two numbers using call by address(pointers or reference) method.

COs M BL

1 8 L2

1 6 L1

1 6 L3

1 8 L2

1 8 L2

1 4 L2

2 6 L3

2 6 L3

2 8 L1

2 4 L2

2 8 L3

2 8 L2

3 8 L1

3 6 L3

3 6 L1

3 6 L3

3 8 L2

3 6 L1

4 6 L2

4 6 L3

4 8 L1

4 8 L3

4 6 L3

4 6 L3

Module -5

- 9a. Explain structure. Discuss with example the general syntax of a structure. 5 6
b. How data elements are stored under unions, explain with example? 5 6
c. Write a C program to create structure with employee details and display the same. 5 8

OR

- 10a Write the syntax for opening a file with various modes and closing a file. 5 6
b. Write a C program to copy the contents from one file to another file. 5 6
c. Illustrate the following file handling functions with example code snippet: 5 8
a. fseek() b. ftell() c. rewind() d. feof()



Nagarjuna College of Engineering & Technology

(Autonomous Institute Affiliated to VTU)

First Semester BE Degree SE Examination, April 2023



Introduction to C Programming

Time: 3Hrs.

Max. Marks: 100

Note: Answer any one full question from each module

Module - 1

- | | | COs | M | BL |
|----|---|-----|---|----|
| 1a | Explain the characteristics of a computer. | CO1 | 7 | L2 |
| b | Explain the basic structure of a C program with an example. | CO2 | 8 | L2 |
| c | Interpret the values returned by scanf() in the program below considering each of the inputs given: | CO2 | 5 | L3 |

```
#include<stdio.h>
main()
{
    int a;
    float b;
    char c;
    scanf ("%d %f %c", &a, &b, &c);
}
```

- (i) Inputs: 12 12.34 A
(ii) Inputs: 12 ABC 12.34

OR

- | | | | | |
|----|---|-----|---|----|
| 2a | Classify computers based on their speed, the amount of data they can hold, and price. | CO1 | 7 | L2 |
| b | Explain variables and constants. Classify the types of constants allowed in C. | CO2 | 8 | L2 |
| c | Interpret the output of the program below: | CO2 | 5 | L3 |

```
#include<stdio.h>
main()
{
    printf("Result:%d %c %6.2f",12, 'a', 245.37154);
    printf("\nThe number is:%6d",12);
    printf("\nThe number is:%2d",1234);
    printf("\nThe number is:%06d",1234);
    printf("\nThe number is:%09.2f",123.456);
}
```

Module - 2

- | | | | | |
|----|--|-----|---|----|
| 3a | Show the conversion hierarchy of data types. Explain typecasting in an arithmetic expression. Write a program to illustrate typecasting of a floating point number into its corresponding integer. | CO2 | 7 | L4 |
| b | Outline the differences between entry-controlled loop and exit-controlled loop. Explain each with syntax and an example for each. | CO2 | 7 | L2 |
| c | Write a C program using switch statement to determine whether an entered character is vowel or not. | CO2 | 6 | L3 |

OR

- | | | | | |
|----|---|-----|---|----|
| 4a | Demonstrate the use of ternary operator in constructing conditional expressions to find the largest of two numbers. Compare the same with the program to find the largest of two numbers using if-else construct. | CO2 | 7 | L4 |
| b | Outline the difference between break and continue statement. Illustrate the use of each with an example. | CO2 | 7 | L2 |
| c | Write a C program using for loop to classify a given number as prime or | CO2 | 6 | L3 |

composite.

Module - 3

- | | | | | |
|----|---|-----|---|---|
| 5a | Discuss function. Explain the different elements of a user-defined functions in detail. Give example. | CO5 | 8 | L |
| b | Write a program to search an element in a one-dimensional array using linear search. Display appropriate message if the element is not found. | CO3 | 5 | L |
| c | What is a two-dimensional array? Give the syntax for declaring a two-dimensional array and initializing the same with suitable examples. | CO3 | 7 | L |

OR

- | | | | | |
|----|---|-----|---|---|
| 6a | Differentiate between formal and actual parameters with an example. Write a C program using call by value to multiply the values of two integer variables, where the function call is passed with two integers num1 and num2. | CO5 | 8 | L |
| b | Write a C program to print the Fibonacci series using recursion. Read the number of terms in the series. | CO3 | 5 | L |
| c | What are storage classes? Compare the key features of all storage classes. | CO3 | 7 | L |

Module - 4

- | | | | | |
|----|---|-----|----|---|
| 7a | Explain strings. List out four string manipulation functions with syntax. Write a C program to read and print the names of <i>n</i> students of a class using array of strings. | CO3 | 10 | L |
| b | Discuss pointer? Explain how pointer variable is declared and initialized. Write a C program to add two integers using function by passing pointer variables as parameters to the function. | CO4 | 10 | L |

OR

- | | | | | |
|----|---|-----|----|---|
| 8a | Explain array of strings. With general syntax explain declaration of array of strings. Write a C program to check if a given string is palindrome or not using built-in function. | CO3 | 10 | L |
| b | Explain the mechanism of passing arguments to functions using pointers. Write a C program to swap two numbers using call by reference method. | CO4 | 10 | L |

Module - 5

- | | | | | |
|----|---|-----|----|---|
| 9a | What is a structure? Explain with C syntax, structure declaration and initialization. Write a program in C to store and display the information of a student (USN, name and average marks) using a structure. | CO4 | 10 | L |
| b | Discuss input and output operations on files with example. | CO5 | 10 | L |

OR

- | | | | | |
|-----|---|-----|----|---|
| 10a | Explain structure within a structure and array of structures with suitable example. | CO4 | 10 | L |
| b | Explain file in C. Discuss the steps involved in using files in C. | CO5 | 10 | L |

composite.

Module - 3

- 5a Discuss function. Explain the different elements of a user-defined functions in detail. Give example. CO5 8 L3
- b Write a program to search an element in a one-dimensional array using linear search. Display appropriate message if the element is not found. CO3 5 L3
- c What is a two-dimensional array? Give the syntax for declaring a two-dimensional array and initializing the same with suitable examples. CO3 7 L2

OR

- 6a Differentiate between formal and actual parameters with an example. Write a C program using call by value to multiply the values of two integer variables, where the function call is passed with two integers num1 and num2. CO5 8 L3
- b Write a C program to print the Fibonacci series using recursion. Read the number of terms in the series. CO3 5 L3
- c What are storage classes? Compare the key features of all storage classes. CO3 7 L2

Module - 4

- 7a Explain strings. List out four string manipulation functions with syntax. Write a C program to read and print the names of n students of a class using array of strings. CO3 10 L3
- b Discuss pointer? Explain how pointer variable is declared and initialized. Write a C program to add two integers using function by passing pointer variables as parameters to the function. CO4 10 L3

OR

- 8a Explain array of strings. With general syntax explain declaration of array of strings. Write a C program to check if a given string is palindrome or not using built-in function. CO3 10 L3
- b Explain the mechanism of passing arguments to functions using pointers. Write a C program to swap two numbers using call by reference method. CO4 10 L3

Module - 5

- 9a What is a structure? Explain with C syntax, structure declaration and initialization. Write a program in C to store and display the information of a student (USN, name and average marks) using a structure. CO4 10 L3
- b Discuss input and output operations on files with example. CO5 10
- 10a Explain structure within a structure and array of structures with suitable example. CO4 10
- b Explain file in C. Discuss the steps involved in using files in C. CO5 10
