

Nirma University

Institute of Technology

Supplementary Examination (SPE), February - 2024

B. Tech. in CL / CH / ME / EE / EC / CSE, Semester-I

1CS501 Computer Programming

Roll/

Exam No.

Supervisor's initial
with date

Time: 3 Hours

Max. Marks: 100

- Instructions:
- 1. All questions are compulsory. (No Optional Questions)**
 - 2. Use section-wise separate answer book.**
 3. Figure at right indicates full marks.
 4. Draw neat sketches wherever necessary.
 5. Assume suitable data if necessary.

SECTION-A

- Q-1 (A)** Differentiate between System Software and Application Software. [04]
CLO1
BL2
- Q-1 (B)** Explain the **long** data type. Also, discuss memory requirements and the range of values it can store. [06]
CLO1
BL2
- Q-1 (C)** Discuss any two salient features of the 'C' programming language. [06]
CLO1
BL2
- Q-2 (A)** Explain explicit type conversion with a suitable code example. [06]
CLO1
BL2
- Q-2 (B)** Write an algorithm to swap the value of two numbers (i) using a temporary variable and (ii) without using a temporary variable. [06]
CLO4
BL4
- Q-2 (C)** Draw a flowchart to get two integer numbers from the user. Compute and display the result of one of the arithmetic operations (+, -, *, / and %) based on user choice. [06]
CLO4
BL4
- Q-3 (A)** Explain the ternary operator with a suitable code snippet. [04]
CLO3
BL3
- Q-3 (B)** Write a program to find the sum of elements of the one-dimensional integer array. [06]
CLO2
BL3

- Q-3 (C)** Write a program to create the following pattern. Take a number of [06]
 rows from the user.
 CLO3
 BL3
- ```

A
B B
C C C
D D D D
E E E E E

```

### SECTION-B

- Q-4 (A)** Explain the *structure* data type with syntax (a general format). Create [08]  
 a structure to store participants' score details (participant name,  
 score) for a competition. Read and display participants' details.  
 CLO2  
 BL3
- Q-4 (B)** Write a program to find the transpose of a matrix. Also, determine [08]  
 whether the matrix is symmetric. Take the dimension(s) and matrix  
 elements from the user.  
 CLO2  
 BL3
- Q-5 (A)** Write a program to find power ( $x^y$ ) using a user-defined function [06]  
 where the base and exponent are positive integer numbers.  
 CLO3  
 BL3
- Q-5 (B)** Explain *strlen* library function with a suitable code snippet. How is [06]  
 it different from *sizeof*?  
 CLO3  
 BL3
- Q-5 (C)** Explain the *nested if* statement with a suitable code snippet. [06]  
 CLO1  
 BL2
- Q-6 (A)** Differentiate between the scope and lifetime of a variable. [04]  
 CLO3  
 BL3
- Q-6 (B)** Write a program to reverse the array elements using a pointer. [06]  
 CLO4  
 BL4
- Q-6 (C)** Write a program to count the number of vowels from the text file. [06]  
 CLO4  
 BL4

# Nirma University

## Institute of Technology

Supplementary Examination (SPE), March - 2024

B. Tech. in Electronics and Instrumentation Engineering, Semester-I

1CS501 Computer Programming

Roll/

Exam No.

Supervisor's initial  
with date

Time: 3 Hours

Max. Marks: 100

Instructions:

1. All questions are compulsory. (No Optional Questions)
2. Use section-wise separate answer book.
3. Figure at right indicates full marks.
4. Draw neat sketches wherever necessary.
5. Assume suitable data if necessary.

### SECTION-A

**Q-1 (A)** Differentiate between High-level language and Low-level language. [04]

CLO1  
BL2

**Q-1 (B)** Explain the *int* data type. Also discuss memory requirement and the range of values it can store. [06]

CLO1  
BL2

**Q-1 (C)** Discuss and demonstrate the usage of any three escape sequence characters. [06]

CLO1  
BL2

**Q-2 (A)** Explain implicit type conversion with a suitable code example. [06]

CLO1  
BL2

**Q-2 (B)** Write an algorithm to display even positive integer numbers between 1 and 50. [06]

CLO4  
BL4

**Q-2 (C)** Draw a flowchart to check whether the number entered by the user is a *Prime* number. [06]

CLO4  
BL4

**Q-3 (A)** Explain the *bitwise-AND* operator and *bitwise-OR* operator. Substantiate the answer with suitable code snippets. [04]

CLO3  
BL3

**Q-3 (B)** Write a program to find the frequency of a given number from the one-dimensional integer array. [06]

CLO2  
BL3

**Q-3 (C)** Write a program to create following pattern. Take number of rows [06]  
from the user.

CLO3  
BL3

```

 1
 1 2 1
 1 2 3 2 1
 1 2 3 4 3 2 1
 1 2 3 4 5 4 3 2 1

```

### SECTION-B

**Q-4 (A)** Create a structure data-type for employee which holds attributes [08]  
named `employee_name`, `id`, `basic_salary`, `DA_percentage`,  
HRA\_percentage and `total_salary`. Write a program to scan these  
(except `total_salary`) attributes for five employees and display name  
of the employee whose salary is maximum.

CLO2  
BL3

**Q-4 (B)** Write a program to find multiplication of two matrices. Take [08]  
dimension of matrices from the user. Also do validation for possibility  
of matrix multiplication.

CLO2  
BL3

**Q-5 (A)** Write a program to find square of given integer number using *user-* [06]  
*defined function*.

CLO3  
BL3

**Q-5 (B)** Explain ***strcpy*** and ***strncpy*** library functions with suitable code [06]  
snippet.

CLO3  
BL3

**Q-5 (C)** Explain ***goto*** statement with suitable code snippet. [06]

CLO1  
BL2

**Q-6 (A)** Differentiate between actual arguments and formal arguments. [04]

CLO3  
BL3

**Q-6 (B)** Write a program to find string length using pointer. [06]

CLO4  
BL4

**Q-6 (C)** Write a program to read content of text file and display it on standard [06]  
output device.

CLO4  
BL4

**Nirma University**  
**Institute of Technology**  
Semester End Examination (RPR), April - 2025  
B. Tech. in All Programmes, Semester-I  
1CS501CC22 / 1CS501 Computer Programming

Roll /  
Exam No.

Supervisor's initial  
date

Time: 3 Hour

Max. Marks: 100

Instructions:

1. Attempt all questions.
2. Assume data whenever necessary.
2. Figures to the right indicate full marks.
4. Draw neat sketches wherever necessary.

**Section 1**

**Q:1 Attempt ALL questions:**

**[25]**

A Explain the concept of type conversion in C. Provide examples of both automatic (implicit) and manual (explicit) type conversions. [5]  
[CO1, BL1]

B Explain the different types of tokens used in the C language. Give examples of any three: operators, keywords, and identifiers. [5]  
[CO1, BL1]

C What is an Algorithm? Write an algorithm to find the largest of 3 numbers. [5]  
[CO2, BL1]

D Explain the following functions in file operations [5]  
[CO2, BL2]  
a) getw()  
b) putw()  
c) fscanf()  
d) fprintf()  
e) fputc()

E Define flowchart. Draw a flowchart to compute whether the number is Armstrong or not. [5]  
[CO2, BL1]

**Q:2 Attempt ALL questions:**

**[25]**

A Write a C program to find intersection (set theory) of two input integer arrays. [5]  
[CO2, BL3]

B Write the construct of switch case statement and illustrate its benefits. Write a program using a switch-case to take a digit (0-9) and display whether it's odd or even. [10]  
[CO2, BL3]

C Write a C program to find the product of digits of a given number. Eg (123 product = 1\*2\*3) [5]  
[CO4, BL3]



BL2]

- D Give the difference between break and continue statement with an example using nested for loop. [5]  
[CO2, BL2]

**Section 2**

**Q:3 Attempt ALL questions:** [25]

- A Describe Compiler, interpreter, assembler? Write the names of compiler that are used in C programming. [5]  
[CO2, BL2]

- B Write a C program to find the sum of the diagonal elements of a square matrix. [5]  
[CO2, BL2]

- C Write a C program to remove duplicate elements from an array. [5]  
[CO1, BL2]

- D Write a C program to find the sum of two numbers using a function. Show the difference in result using call by value and call by reference. [5]  
[CO1, BL2]

- E What is recursion? Draw flow chart to find the factorial of a given integer. [5]  
[CO3, BL3]

**Q:4 Attempt ALL questions:** [25]

- A What is pointer? What are the advantages and disadvantages of pointer? Give the output of following codes: [10]  
[CO4, BL3]

```
int main()
{
 int i = 5;
 int *ptr;
 ptr = &i;
 printf("i = %d\n", i);
 printf("*ptr = %d\n", *ptr);
 return 0;
}
```

```
int main()
{
 int a[5] = {1,2,3,4,5};
 int *ptr;
 ptr = &a;
 printf("%d \n", *ptr);
 ptr++;
 printf("%d \n", *ptr);
 *ptr = 9;
 printf("%d \n", *ptr);
 ptr--;
}
```

```
 printf("%d \n", *ptr);
 return 0;
}
```

- B Write a C program to copy one string to another without using strcpy() [5]  
[CO3,  
BL2]
- C Write a program using structures to store and display product information [10]  
[CO3, (Product\_ID, Product\_Name, Price). Display all products with price above INR  
BL4] 500.

# Nirma University

## Institute of Technology

Supplementary Examination (SPE), February - 2025

B Tech in All Programs, Semester – I

Int. B.Tech. (CSE) – MBA, Semester – I

**1CS501CC22 Computer Programming**

Roll/

Exam No.

Supervisor's initial  
with date

Time: 3 Hours

Max. Marks: 100

Instructions:

- 1. All questions are compulsory. (No Optional Questions)**
- 2. Use section-wise separate answer book.**
3. Figure at right indicates full marks.
4. Draw neat sketches wherever necessary.
5. Assume suitable data if necessary.

### SECTION-A

- Q-1 (A)** Differentiate between IDE Software and Application Software. [04]  
CLO1  
BL3
- Q-1 (B)** Explain the data type *float* concerning storage size and the range of values it can store. [06]  
CLO1  
BL2
- Q-1 (C)** Discuss any two prominent applications of the 'C' programming language. [06]  
CLO1  
BL3
- Q-2 (A)** Explain the need for the "user defined datatype" in *structure* with suitable code snippet. [06]  
CLO1  
BL2
- Q-2 (B)** Write a C program to read the price of item in decimal form, for example, 145.83. The program is supposed to separate rupee and paise from the given value, for example, 145 rupees and 83 paise. [06]  
CLO2  
BL3
- Q-2 (C)** Describe the concept of precedence and associativity with a suitable program in C. [06]  
CLO1  
BL2
- Q-3 (A)** Explain the binary left shift operator and binary right shift operator with a suitable code snippet. [04]  
CLO3  
BL2
- Q-3 (B)** Suppose that a class has 5 students. Each student study four subjects; CP, CS, Maths, and Physics. Make a 2D array for the same. Build a C program [06]  
CLO2  
BL3
- i. To find total marks in all subjects obtained by each student.



- ii. To find average marks obtained by all 5 students in C programming subject.

**Q-3 (C)** Write a program to determine whether the entered number is Prime. [06]  
CLO2  
BL4

### SECTION-B

**Q-4 (A)** Write a C program to reverse a sentence using user defined function. [08]  
CLO3  
BL3

**Q-4 (B)** Define a structure as Employee of a company having fields id, name, date of joining and designation. Write a C program to display designation of all the employees who have joined the company before 01/02/2023. [08]  
CLO2  
BL3

**Q-5 (A)** Write a C program to convert the input matrix into Identity matrix. [06]  
CLO2  
BL3

**Q-5 (B)** Explain **strcmp** and **strncmp** library functions with suitable code snippet. [06]  
CLO3  
BL3

**Q-5 (C)** Explain the working of **while loop** statement with suitable code snippet. [06]  
CLO1  
BL2

**Q-6 (A)** Differentiate between call by value and call by reference. [04]  
CLO3  
BL3

**Q-6 (B)** Write a program to swap the values of two integer variables using a user defined function where arguments are passed using the method call by value. [06]  
CLO4  
BL4

**Q-6 (C)** Write a program to read integer numbers from the user. Write prime numbers in file named prime.txt text file and non prime numbers in non\_prime.txt text file. [06]  
CLO4  
BL4

**Nirma University**  
**Institute of Technology**  
Semester End Examination (RPR), April - 2025  
B. Tech. in All Programmes, Semester-I  
1CS501CC22 / 1CS501 Computer Programming

Roll /  
Exam No.

Supervisor's initial  
date

Time: 3 Hour

Max. Marks: 100

Instructions:

1. Attempt all questions.
2. Assume data whenever necessary.
2. Figures to the right indicate full marks.
4. Draw neat sketches wherever necessary.

**Section 1**

**Q:1 Attempt ALL questions:**

**[25]**

A Explain the concept of type conversion in C. Provide examples of both automatic (implicit) and manual (explicit) type conversions. [5]  
[CO1, BL1]

B Explain the different types of tokens used in the C language. Give examples of any three: operators, keywords, and identifiers. [5]  
[CO1, BL1]

C What is an Algorithm? Write an algorithm to find the largest of 3 numbers. [5]  
[CO2, BL1]

D Explain the following functions in file operations [5]  
[CO2, BL2]  
a) getw()  
b) putw()  
c) fscanf()  
d) fprintf()  
e) fputc()

E Define flowchart. Draw a flowchart to compute whether the number is Armstrong or not. [5]  
[CO2, BL1]

**Q:2 Attempt ALL questions:**

**[25]**

A Write a C program to find intersection (set theory) of two input integer arrays. [5]  
[CO2, BL3]

B Write the construct of switch case statement and illustrate its benefits. Write a program using a switch-case to take a digit (0-9) and display whether it's odd or even. [10]  
[CO2, BL3]

C Write a C program to find the product of digits of a given number. Eg (123 product = 1\*2\*3) [5]  
[CO4, BL3]

BL2]

- D Give the difference between break and continue statement with an example using nested for loop. [5]  
[CO2, BL2]

**Section 2**

**Q:3 Attempt ALL questions:** [25]

- A Describe Compiler, interpreter, assembler? Write the names of compiler that are used in C programming. [5]  
[CO2, BL2]

- B Write a C program to find the sum of the diagonal elements of a square matrix. [5]  
[CO2, BL2]

- C Write a C program to remove duplicate elements from an array. [5]  
[CO1, BL2]

- D Write a C program to find the sum of two numbers using a function. Show the difference in result using call by value and call by reference. [5]  
[CO1, BL2]

- E What is recursion? Draw flow chart to find the factorial of a given integer. [5]  
[CO3, BL3]

**Q:4 Attempt ALL questions:** [25]

- A What is pointer? What are the advantages and disadvantages of pointer? Give the output of following codes: [10]  
[CO4, BL3]

```
int main()
{
 int i = 5;
 int *ptr;
 ptr = &i;
 printf("i = %d\n", i);
 printf("*ptr = %d\n", *ptr);
 return 0;
}
```

```
int main()
{
 int a[5] = {1,2,3,4,5};
 int *ptr;
 ptr = &a;
 printf("%d \n", *ptr);
 ptr++;
 printf("%d \n", *ptr);
 *ptr = 9;
 printf("%d \n", *ptr);
 ptr--;
}
```

```
 printf("%d \n", *ptr);
 return 0;
}
```

- B Write a C program to copy one string to another without using strcpy() [5]  
[CO3,  
BL2]
- C Write a program using structures to store and display product information [10]  
[CO3, (Product\_ID, Product\_Name, Price). Display all products with price above INR  
BL4] 500.

# Nirma University

## Institute of Technology

Semester End Examination (RPR), June - 2023

B. Tech. in All Programmes, Semester-I

Int. B. Tech. (CSE) - MBA, Semester-I

1CS501 Computer Programming

Roll /  
Exam No.

Supervisor's initial  
date

Time: 3 Hour

Max. Marks: 100

Instructions:

1. Attempt all questions.
2. Assume data whenever necessary.
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4. Draw neat sketches wherever necessary.

### Section I

**Q:1 Attempt ALL questions:** [30]

A Write a C program to input basic salary of an employee and calculate its Gross salary according to following: [7]  
[CO3, BL3]  
Basic Salary (BS) ≤ 20000 : HRA = 18% of BS, DA = 85% of BS  
Basic Salary ≤ 30000 : HRA = 24% of BS, DA = 90% of BS  
Basic Salary > 30000 : HRA = 28% of BS, DA = 95% of BS  
Gross Salary = Basic Salary + HRA + DA

B What is an identifier (variable)? What are the rules to construct identifier (variable)? Classify the following as valid/invalid Identifiers. [7]  
[CO2, BL2]  
(i) abc2 (ii) \$abc1 (iii) +abc (iv) a\_2 (v) 100\_abc (vi) \_abc (vii) #123

C Write a program using switch case to calculate the area of different geometrical figures like Circle, triangle, square, and rectangle. The program should ask the user to enter the character for which the user wants to find out the area. [8]  
[CO3, BL3]  
't' for triangle  
'c' for circle  
's' for square  
'r' for rectangle

D What is an Algorithm? Write an algorithm to find the average of N numbers [8]  
[CO2, BL3]

**Q:2 Attempt ALL questions:** [20]

A What is an array? Write a C program to reverse the content of 1-D integer array. [2+5=7]  
[CO3, BL3]

B What is a function? Write a function to Convert Binary Number to Decimal and vice-versa [3+5=8]  
[CO4, BL4]

C Explain following terms giving suitable example [5]  
[CO1, BL2]  
1) continue  
2) break



## Section II

**Q:3 Attempt ALL questions: [25]**

A [CO4, BL4] What is the difference between array and array of structure? Write a C program to maintain a record of N students details using an array of structures with four fields (roll no, name, marks, and grade). Assume appropriate data type for each field. Print the marks of the student given the student name as input. [8]

B [CO1, BL2] Why file system is required in C programming? Explain fgetw(), rewind(), fopen(), and fgetc() functions. [5]

C [CO2, BL2] Explain the different ways in which you can declare & initialize a single dimensional array [5]

D [CO4, BL3] Write a function in C which takes the address of a single dimensional array and the total number of elements stored in that array as an argument. The function should reverse elements of array using call by reference. [7]

**Q:4 Attempt ALL questions: [25]**

A [CO2, BL2] Why do we use structures in C? What are its advantages and disadvantages over array? [5]

B [CO2, BL2] What is void pointer? What are the uses of it? Explain by providing one example. [7]

C [CO2, BL2] With a simple example, explain scope and life time of variables in C [5]

D [CO2, BL2] Write a program to concatenate two strings without using any inbuilt functions like strlen. [8]

# Nirma University

## Institute of Technology

Semester End Examination (RPR), May - 2024

B. Tech. in CL / CH / ME / EE / EC / CSE, Semester-I

Int. B. Tech. (CSE) - MBA, Semester-I

1CS501 Computer Programming

Roll /  
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No.

Supervisor's  
initial date

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Max. Marks: 100

Instructions:

1. Attempt all questions.
2. Assume data whenever necessary.
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4. Draw neat sketches wherever necessary.

### Section 1

Q.1

Attempt ALL questions:

[30]

A  
[CO1,  
BL2]

With a neat diagram explain the basic structure of a computer.

[5]

B  
[CO1,  
BL1]

What is an operator? Explain any five operators used in C programming language.

[5]

C  
[CO1,  
BL3]

Define variable. Explain the rules for constructing the variables in C language. Classify the following as valid/invalid variables:

[5]

i. num2    ii. \_num    iii. #num    iv. +num

D  
[CO1,  
BL4]

Evaluate the following expressions:

[10]

A.  $22+3<6\&\&!5\ ||\ 22==7\&\&22-2>+5$

B.  $a+2>b\ ||\ !c\&\&a==d*a-2<=e$ , where  $a=11$ ,  $b=6$ ,  $c=0$ ,  $d=7$  and  $e=5$ .

C.  $100\%20<=20-5+100\%10-20==5>=1!=20$

D.  $a+=b*=c-=5$ , where,  $a=3$ ,  $b=5$  and  $c=8$ .

E  
[CO1,BL2]

Define type conversion. Explain the types of type conversion available in C programming language.

[5]

Q.2

Attempt ALL questions:

[20]

A  
[CO2,BL3]

Define array. Write a program in C to read 'n' elements of the array and display the a) sum of odd numbers b) sum of even numbers and c) average of all the elements. The results should be displayed with appropriate headings.

[8]

B  
[CO1,  
BL3]

What is ternary operator? Write a program in C to find the largest of three numbers using ternary operator.

[6]

C  
[CO3,  
BL3]

An electricity board charges the following rates for the use of

[6]

electricity: for the first 200 units 20 paise per unit: for the next 100 units 40 paise per unit: beyond 300 units Rs 1 per unit. All

1 C5501

users are charged a minimum of Rs. 50 as meter charge. If the total amount is more than Rs 500, then an additional surcharge of 10% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.

### Section 2

**Q:3**

**Attempt ALL questions:**

**[25]**

- A  
[CO3, BL3] Explain the different elements of user defined function in detail with suitable example. [5]
- B  
[CO3, BL4] Write a program in C to swap two numbers using the concept of call by value and call by reference. [5]
- C  
[CO4, BL3] Write a program in C to maintain the record of 'n' students using an array of structure. The following information is stored for each student: roll no, name, marks in maths out of 100. Print the details of the students who have scored greater than 90 marks. [5]
- D  
[CO2, BL3] Define String. Write a C program that reads a sentence and prints the frequency of each of the vowels and total count of consonants. [10]

**Q.4**

**Attempt ALL questions:**

**[25]**

- A  
[CO3, BL4] Explain the classification of user defined functions with suitable examples. [5]
- B  
[CO4, BL4] What is a pointer? Write a program in C to find the sum and mean of all elements in an array using pointer. [5]
- C  
[CO2, BL3] Define recursion. Write a C program to find the factorial of a number using recursion. [5]
- D  
[CO3, BL5] Write a C function isprime(num) that accepts an integer argument and returns 1 if the argument is a prime or 0 otherwise. Write a program that invokes this function to generate prime numbers between the given ranges. [10]