NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR

MID SEMESTER EXAMINATION (OCTOBER 2023)

SEMESTER: 1st (2023 Batch) SESSION: 2023 - 2024
BRANCH: M.C.A CREDIT: 4
TIME: 2 Hours FULL MARKS: 30 Course Faculty: Tanu Priya

Subject: **CS3101 Computer Programming & Problem Solving using C**

INSTRUCTIONS:
1) Answer **ALL** the questions and should be written in order.
2) Marks of the question and part their of are indicated in the right hand margin.
3) Missing data, if any, may be assumed suitably.
4) Before attempting the question paper be sure that you have got the correct question paper.

Q1. Answer the following questions:- [2 x 5=10]

(i) What is software? List the different types of software with examples.
(ii) What is ROM? Explain its type.
(iii) Draw a flowchart to find the largest of three given numbers.
(iv) Write an algorithm to find the area of a triangle whose sides are given.
(v) Why there is a need to study C programming language?

Q2.(a) Explain the different types of operators used in C programming language with examples. [5]

(b) Write a program to print the prime numbers between 1 and 100. [5]

OR

Write a program to display the following patterns: [5]

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

Q3.(a) Explain the difference between break and continue statement with suitable examples. [5]

(b) Write a program to find the maximum score, average score and the number of students whose score is greater than the class average for a class of 100 students with the given scores. [5]

OR

What do you mean by recursion? Write a program to find the factorial of a given number using recursion. [5]

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MID-SEM 2023

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NATIONAL INSTITUTE OF TECHNOLOGY JAMSHEDPUR

Department of Computer Science & Engineering

MID SEMESTER EXAMINATION – 2022

MCA (1st Year) **Course Code: CA3101**

Course Name – Computer Programming and Problem-Solving using C

Date of Exam: 19/10/2022 **Time:** 2 Hours

Max Marks: 30 **Name of the Faculty**: Dr. Danish Ali Khan

Note: The question paper consists of 03 questions. Attempt all the questions. All questions are carried 10 marks each. Assume any suitable missing data, if any.

1. (a) What are Data types in C write the range of various data types in C.? 2.5

   (b) How many types of arithmetic operators are there in C.? Explain anyone type with an example.? 2.5

   (c) Write a C program for the following: -
   - Binary to Octal
   - Binary to Hexadecimal 05

2. (a) Difference between **Continue** and **Break** statement explain it with a suitable example.? 05

   (b) Write a C program to find the max element in an array of size 7.? 05

3. (a) What is loops in C explain all three types of loops.? 05

   (b) Write a Menu-Driven program for,
   - Factorial
   - Even odd 05

MID-SEM 2022

NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR

MID SEMESTER ONLINE EXAMINATION (NOVEMBER 2021)

SEMESTER: 1ST (2021 Batch) | SESSION: 2021- 2022
BRANCH: M.C.A | CREDIT: 4
TIME: 2 Hours | FULL MARKS: 30

Subject: **CA3101 Computer Programming and Problem Solving**

INSTRUCTIONS:

1) Attempt all THREE questions.
2) Marks of the question and part their of are indicated in the right hand margin.
3) Missing data, if any, may be assumed suitably.

Q1.(a) What is the limitation of the following statement? Which format specifier will you use to overcome it?

```
scanf ("%s" , name);
```
[2]

(b) Write a program to accept a floating point number from the keyboard. Print the same number in the following formats:
i) Total width of 10 characters
ii) As in (a) but with 3 places after decimal.
iii) Exponential notation
iv) As in (c) but with 3 places after decimal. [3]

(c) An election is contested by 5 candidates. The candidates are numbered 1 to 5 and the voting is done by marking the candidate number on the ballot paper. Write a program to read the ballots and count the votes cast for each candidate using an array variable **count**. In case, a number read is outside the range 1 to 5, the ballot should be considered as a 'spoilt ballot' and the program should also count the number of spoilt ballots. [5]

Q2.(a) What is the purpose of the **switch** statement? How does it differ from the nested **if-else** structure? Give suitable example. [4]

(b) Every book published by international publishers should carry an International Standard Book Number (ISBN). It is a 10 character 4 part number as shown below.

0-07-041183-2

The first part denotes the region, the second represents publisher, the third identifies the book and the fourth is the check digit. The check digit is computed as follows:
Sum = (1 x first digit) + (2 x second digit) + (3 x third digit) + - - - - + (9 x ninth digit).
Check digit is the remainder when sum is divided by 11. Write a program that reads a given ISBN number and checks whether it represents a valid ISBN. [6]

Q3.(a) Write a program that declares and initializes a 10-element array with arbitrary values. The program should accept an integer from the keyboard, delete all matching array elements and print the modified array in reverse sequence. [4]

(b) Binomial coefficients are used in the study of binomial distributions and reliability of multicomponent redundant systems. It is given by,
B(m , x) = m! / x! (m - x)! , m >= x
Write a program to determine the binomial coefficient for any set of m and x. [6]

OR

A department store chain has 3 stores and each store has the same 5 departments. The weekly sales of the chain are stored in a 3 X 5 array SALES. Write a complete program which
(i) Prints the total weekly sales of each store.
(ii) Prints the total weekly sales of each department.
(iii) Prints the total weekly sales of the chain.

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END-SEM 2021

(Roll No._____)

NATIONAL INSTITUTE OF TECHNOLOGY JAMSHEDPUR
END SEMESTER EXAMINATION, AUTUMN SEMESTER 2020-21
Department of Computer Applications

Course Code: CA3101 **Course Title:** Computer Programming & Problem Solving Using C
Date: 18/04/2021 **Day:** Sunday **OPEN BOOK**
Course Instructor/Instructor in-charge (Name of the Faculty): Dr. Chandrashekhar Azad
Duration: 03 Hour **Max. Marks:** 50

1. Attempt all the questions. Write **parts of a question at one place** in the answer sheet.
2. Marks of the questions and their part are indicated in the **right-hand margin**.
3. Missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got correct question paper.

Question 1. **(5+5=10)**

a. How will you determine the endian of your system through C program? Based on endian of your system show the memory representation of integer and float type.

b. Write a program in C of your choice that must have generic pointer declaration, static variable usage with and without assignment of value, different type of pointer declaration, local function declaration, global variable declaration and different type of variable declaration. ***Show the memory representation of the program***.

Question 2. **(5+5=10)**

a. Suppose that you developed software for a leading MNC but their higher management not satisfied with logic used for the particular part of the program. But you are not willing to delete that code because you are thinking that may be in near future they may want it. So, you decided that writing an efficient code that will meet the expectations of higher management and the old code will also be the part the program (but not commented) but not compile at the time of compilation. ***Implement the above case study by writing a suitable C program code.***

b. Write a program in C to accept, integer, character, string type of values without using any input/output function.

Question 3. **(5+5=10)**

a. Write a program in C to print Fibonacci series dynamically.
b. Few years ago DOS is very popular among IT engineers. Suppose that a leading MNC want to modify the coding of DOS Copy command and they assigned that work to you. How will you create DOS Copy command for copying one file to another? ***Write suitable program for your solution.***

(Roll No._____)

Question 4. **(5+5=10)**

a. Discuss alternatives for followings:
   i. Nested if
   ii. break
   iii. clrscr()
   iv. array
   v. continue

b. Write any 5 applications for each concept:
   i. Structure
   ii. Variable
   iii. String
   iv. Preprocessor
   v. File Handling

Question 5. **(5+5=10)**

a. Match the following with reference to the following segment and also give the interpretation of each:

```
int arr[3][5] = {
                    { 1, 2, 3, 4, 5 },
                    { 6, 7, 8, 9, 10 },
                    { 11, 12, 13, 14, 15 }
                }, *ptr = &arr ;
```

1.	*(*(arr + 2) + 1)	a.	9
2.	*(*arr + 2) + 5	b.	13
3.	*(*(arr + 1))	c.	4
4.	*(*(arr) + 2) + 1	d.	3
5.	* (*(arr + 1) + 3)	e.	2
6.	*ptr	f.	12
7.	*(ptr +2)	g.	14
8.	(*(ptr + 3) + 1	h.	7
9.	*(ptr + 5)+1	i.	1
10.	++*ptr	j.	8
		k.	5
		l.	10
		m.	6

b. Write a menu driven program in C to do task:

i. Create a user defined data type that is able store any type of data. Also demonstrate the same through a program.
ii. Display system date.
iii. Convert all lower case characters of a file to upper case.

*****END*****