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# MEERUT INSTITUTE OF ENGINEERING AND TECHNOLOGY

NH-58, Delhi-Roorkee Highway, Baghpat Road, Meerut – 250 005 U.P.

1/7/23

## Pre University Test (PUT): Even Semester 2022-23

6/0

Course/Branch : B Tech (All) | Semester : III

Subject Name : Programming for Problem Solving | Max. Marks : 100

Subject Code : BCS201 | Time : 180 min

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CO-1 : *Translate the algorithms to programs & perform its execution.*

CO-2 : *Implement conditional branching structure along with use of operators.*

CO-3 : *Use looping instructions, arrays and structures to develop programs.*

CO-4 : *Decompose a problem into functions and synthesize a complete program.*

CO-5 : *Utilize the pointer, file handling, dynamic memory allocation to solve the problems.*

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## Section – A # 20 Marks (Short Answer Type Questions)

Attempt ALL the questions. Each Question is of 2 marks (10 x 2 = 20 marks)

| Q. No. | | COx | Question Description # Attempt ALL the questions. Each Question is of 2 marks |
|---|---|---|---|
| 1 | A | CO1 | Define syntax error, runtime error & logical error. (BKL: K1-K2 Level). |
| 2 | B | CO1 | Explain the structure of C program using example? (BKL: K1-K2 Level). |
| 3 | C | CO2 | Differentiate between else if ladder & switch statement. (BKL: K1-K2 Level). |
| 4 | D | CO2 | Write the code of leap year using conditional operator. (BKL: K1-K2 Level). |
| 5 | E | CO3 | How entry control loop & exit control loop differs. (BKL: K1-K2 Level). |
| 6 | F | CO3 | What is the role of break & continue in loops. (BKL: K1-K2 Level). |
| 7 | G | CO4 | What is array of structure? Give proper example (BKL: K1-K2 Level). |
| 8 | H | CO4 | Write short note on enumerated datatype with syntax. (BKL: K1-K2 Level). |
| 9 | I | CO5 | What is special about void pointer? Give syntax (BKL: K1-K2 Level). |
| 10 | J | CO5 | What is double pointer and how is it initialized? (BKL: K1-K2 Level). |

## Section – B # 30 Marks (Long / Medium Answer Type Questions)

Attempt ALL the questions. Each Question is of 6 marks (5 x 6 = 30 marks)

**Q.2 (CO-1):** What are the major functional units of a digital computer? Explain each with suitable block diagram.

**OR**

Write the algorithm to generate Fibonacci series of n terms & draw the flowchart to find the largest of 3 numbers.

**Q.3 (CO-2):** What are the rules for switch statement? Write a program to draw calculator using switch statement.

**OR**

Write a program to print the roots of quadratic equation for real roots & otherwise print imaginary roots.

Q.4 (CO-3): What are storage classes? Write a program to check whether the number is Armstrong number or not.

OR

Write a C function to find the sum of following series $x^1/1! + x^2/2! + x^3/3!$ -------- Upto n terms entered by user.

Q.5 (CO-4): What are searching techniques? Write a C program to search a specific number using binary search.

OR

What are sorting techniques .Write a program using bubble or selection sort technique to sort integer array.

Q.6 (CO-5): What is difference between static memory allocation & dynamic memory allocation? What is the task of following memory allocation function malloc (), calloc (), realloc () & free ()?

OR

What is preprocessor directive? Explain the role of #define, #include & #ifdef directives with suitable example.

## Section – C # 50 Marks (Medium / Long Answer Type Questions)

**Q.7 (CO-1): Attempt any TWO questions. Each question is of 5 marks.**

a. Write the difference between low level language & high level language.

b. What are difference between I) compiler & interpreter II) linker & loader?

c. Define data types. Discuss primitive data types in terms of memory, range etc.

**Q.8 (CO-2): Attempt any TWO questions. Each question is of 5 marks.**

a. Define operator. Explain any four classification of operator using suitable example.

b. Write the difference between type conversion & type casting using proper example.

c. Write a program to check whether the given character is upper, lower, numeric or symbol.

**Q.9 (CO-3): Attempt any ONE question. Each question is of 10 marks.**

a. Write difference between structure & union. Write a program to multiply two square matrices of dimension N X N (3 X 3) and store the result in another matrix.

b. Define string. Explain predefined string functions. Write a program to reverse the string without strrev() function.

**Q.10 (CO-4): Attempt any ONE question. Each question is of 10 marks.**

a. What are actual & formal parameters? Discuss types of parameter passing mechanism in C with example?

b. What is recursion & its principle? Write a C program to generate the Fibonacci Series using recursion.

**Q.11 (CO-5): Attempt any ONE question. Each question is of 10 marks.**

a. What is linked list? Write the self-referential structure of a node in linked list? Explain the command line argument in C with suitable example.

b. Explain the various file handling operations. Write a C program to read integer value from data.txt & write all odd numbers in file odd.txt & even numbers in file even.txt.

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