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VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN
(An Autonomous Institution)

I-B.Tech.-I-Semester Regular Examinations, February-2025

Programming for Problem Solving
(Common to IT, CSE [AI&ML], CSE [DS])

Time: 3 Hours

Max. Marks: 60

(Answer All Questions)

Note: Question paper consists of Part-A & Part-B.

- **Part-A** for 10M, ii) **Part-B** for 50marks
- **Part A** is compulsory, consists of 10 sub questions from all units carrying equal marks.
- **Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A

(10Marks)

- 1 a. Differentiate between object code and executable code. 1M
- 1 b. Draw a flowchart to find the roots of the quadratic equation. 1M
- 1 c. Define an array. Write its applications. 1M
- 1 d. How to access structure members? Give an example. 1M
- 1 e. What is EOF? When is EOF used in files. 1M
- 1 f. Implement a C program to find the minimum of given two numbers using macro definition. 1M
- 1 g. What is the purpose of main() in C language? Is it pre-defined or user-defined function. 1M
- 1 h. Develop a recursive function to find the sum of the digits in a given number. 1M
- 1 i. Write the pseudo code for insertion sort. 1M
- 1 j. Explain the time complexity of linear search. 1M

PART-B

(50Marks)

- 2 a Explain the difference between pre-test and post-test loop with an example. 5M
 - 2 b Implement a C program to find the maximum among three numbers using ternary/conditional operators. 5M
- OR
- 3 a Explain storage classes with examples. 5M
 - 3 b Describe the different types of operators used in C language with examples. 5M
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- 4 a Explain how arrays are passed to a function with proper examples. 5M
 - 4 b What is a self-referential structure? Write a program to display details of a student (rollno, name and branch) using self-referential structure. 5M

OR

- 5 a Construct logic in C language to check if a given string is palindrome or not. 5M
- 5 b Explain pointer arithmetic in detail. 5M
- 6 a Explain pre-processor directives. 5M
- 6 b Develop a C program to merge the contents of two files into a third file. 5M

OR

- 7 a Explain the usage of user-defined header file with an example program. 5M
- 7 b Implement a C program to copy the contents of one file into another file. 5M
- 8 a Explain parameter passing techniques with proper examples. 5M
- 8 b Develop a recursive function to print Fibonacci series up to a given number. 5M

OR

- 9 a Construct a recursive function to find the GCD or HCF of given two numbers. 5M
- 9 b Differentiate malloc() and calloc()? Write a program to find the sum of all the elements in a given list using malloc(). 5M
- 10 a Implement binary search and discuss its time complexity. 5M
- 10 b Implement bubble sort. 5M

OR

- 11 a Implement linear search and discuss its time complexity. 5M
- 11 b Implement selection sort. 5M

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