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**GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING FOR WOMEN****(Autonomous)**

(Affiliated to Andhra University, Visakhapatnam)

**I B.Tech. - II Semester Regular / Supplementary Examinations, July – 2026****PROBLEM SOLVING USING C**

[Common to EEE]

1. All questions carry equal marks
2. Must answer all parts of the question at one place

**Time: 3Hrs.****Max Marks: 70****UNIT-I**

1. a. Explain the basic structure of a C program with a neat diagram. Illustrate the purpose of each section using a simple C program. [7M]  
b. Evaluate the expression  $a+b*c-d/e\%f$  and explain the role of operator precedence and associativity in determining the final order of evaluation. [7M]

OR

2. a. Discuss the importance of data types in memory allocation and storage. Explain the commonly used data types in C with examples. [7M]  
b. Develop a C program to calculate the simple interest for a given principal amount, rate of interest, and time entered by the user. [7M]

**UNIT-II**

3. a. Explain the purpose of the conditional operator ( $? :$ ) in C. Compare it with the if-else statement using examples. [7M]  
b. Develop a C program to check whether a given string is a palindrome using if-else statement [7M]

OR

4. a. Develop a C program to concatenate two strings with and without using string handling functions. [7M]  
b. Write a C program to find Addition of two matrices using arrays. [7M]

**UNIT-III**

5. a. Explain the concept of inter-function communication using pointers with suitable examples. [7M]  
b. Develop a C program to find the minimum and maximum elements in an array using pointers. [7M]

OR

6. a. Explain dynamic memory allocation in C. Discuss the functions malloc(), calloc(), realloc(), and free() with suitable examples. [7M]  
b. Develop a C program to generate the first 10 terms of the Fibonacci series using recursion. [7M]

#### **UNIT-IV**

7. a. Explain arrays of structures with suitable examples. Discuss their advantages in handling records [7M]  
b. Develop a C program to store and display the details of five employees using structures. [7M]

OR

8. a. Explain how structures are passed to functions in C with suitable examples [7M]  
b. Describe the concept of nested structures. Illustrate it by developing a C program to store employee information along with department details. [7M]

#### **UNIT-V**

9. a. Explain the concept of random access to files. Discuss the use of fseek(), ftell(), and rewind() with suitable examples. [7M]  
b. Explain the significance of command line arguments in file processing with suitable examples. [7M]

OR

10. a. Explain the importance of error handling during file input/output operations. Discuss the use of ferror() and feof() with suitable examples. [7M]  
b. Develop a C program to count the number of characters, words, and lines in a text file. [7M]