PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

23CGMAL121 : Problem Solving using C

Offered to : B. Sc. Honours (Computer Science with Cognitive Systems)
Course Type: Theory-Major 3
Year of Introduction: 2023 – 2024 **Year of Offering: 2023 – 2024**
Semester: II **Hours : 60** **Credits: 3**

Course Objective:

This course aims to provide exposure to problem-solving through programming and introduce the concepts of the C Programming language.

Course Outcomes (based on BTL):

Course Outcome No.	Outcome	Mapping to
CO1	Understand Tokens and write basic C programs.	PO5
CO2	Understand control structures in C	PO5
CO3	Understand arrays and strings and implement them	PO5
CO4	Understand the right way of using functions, pointers, and structures in C	PO5
CO5	Develop and test programs written in C files	PO5, PO6

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) & PSOs

	CO-PO MATRIX							
	CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
23CGMAL121	CO1					H		
	CO2					H		
	CO3					H		

	CO4					H		
	CO5					H		M

Syllabus Content

UNIT-I: 12 Hours

Introduction to C: Introduction – Structure of C Program, Writing the first C Program, File used in C Program, Compiling and Executing C Programs, Using Comments, Keywords, Identifiers, Basic Data Types in C, Variables, Constants, I/O Statements in C, Operators in C, Programming Examples.

UNIT-II: 12 Hours

Decision Control and Looping Statements: Introduction to Decision Control Statements, Conditional Branching Statements, Iterative Statements, Nested Loops, Break and Continue Statement, goto Statement.

UNIT-III 12 Hours

Arrays: Introduction, Declaration of Arrays, accessing elements of the Array, Storing Values in Array, Operations on Arrays, one dimensional, two dimensional and multi-dimensional arrays, character handling and strings.

UNIT-IV 12 Hours

Functions: Introduction, using functions, Function declaration/ prototype, Function definition, function call, return statement, Passing parameters, Scope of variables, Storage Classes, Recursive functions.

Structure: Introduction, Nested Structures, Arrays of Structures, Structures and Functions, Unions.

UNIT-V 12 Hours

Pointers: Understanding Computer Memory, Introduction to Pointers, declaring Pointer Variables, Pointer Expressions and Pointer Arithmetic, Null Pointers, Passing Arguments to Functions using Pointer, Pointer and Arrays, Memory Allocation in C Programs, Memory Usage, Dynamic Memory Allocation, Drawbacks of Pointers.

Files: Introduction to Files, Using Files in C, Reading Data from Files, Writing Data to Files.

Textbooks:

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.

Reference Books:

1.Yashavant Kanetkar - Let Us 'C' – BPB Publications.

@@@@

PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

MODEL QUESTION PAPER FOR SEM END EXAMINATION 2023-24

23CGMAL121 : Problem Solving using C

Offered to : B. Sc. Honours (Computer Science with Cognitive Systems)
Semester - II **Course Type: Theory Major : 3**
TIME: 3 Hrs **Max Marks: 70M**

NOTE TO PAPER SETTER: IN SECTION A & SECTION B, FOR EACH QUESTION ONE SUB QUESTION (A) MUST BE A PROGRAM MEANT FOR LOGICAL TESTING AND ANOTHER SUB QUESTION (B) IS MEANT FOR DESCRIPTIVE / LOGICAL.

Section A

Answer all Questions **5 x 4=20M**

1. (A) Explain Structure of C. (CO1,L1)

OR

(B) Describe Keywords (CO1,L1)

2. (A) Write about break and continue statements (CO2,L1)

OR

(B) Write a c program to print 1 to 10 natural numbers. (CO2, L1)

3. (A) Summarize one dimensional array with suitable example. (CO3, L2)

OR

(B). Define a string with example program.(CO3, L1)

4. (A) What is scope of variables in functions. (CO4, L1)

OR

(B)Define a function and how to declare a function in c . (CO4, L1)

5. (A) Write about Reading data from files. (CO5, L1)

OR

(B) How to declare a pointer variable in c. (CO5, L1)

Section B

Answer all Questions **5 x 10=50M**

6. (A) Explain Datatypes in c with example. (CO1,L1)

OR

(B) Explain about Input and Output statements in C. (CO1, L1)

7. (A) Summarize Conditional statements in c with example.(CO2, L2)

OR

(B)Summarize iterative statements in c with example. (CO2, L2)

8. (A) Write a program for multiplication of 2 3x3 matrices. (CO3, L1)

OR

(B) Write a program by using string handling functions. (CO3, L1)

9. (A) Explain Storage Classes in c . (CO4, L2)

OR

(B) Explain 'array of structures'. (CO4, L2)

10 (A) Explain Dynamic memory allocation. (CO5, L2)

OR

(B) How to pass arguments to functions using pointers with example program. (CO5, L2)

@@@@