SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR

Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : COMPUTER PROGRAMMING AND PROBLEM SOLVING (19MC9101)

Course & Branch: MCA   **Year & Sem:** I-MCA & I-Sem

Regulation: R19

UNIT –I

Introduction to Algorithms and flowcharts and The C declaration

1.	(a)	Define Algorithm. Explain steps need to consider for Algorithm.	5M
	(b)	Explain the structure of a c program in detail.	5M
2.	(a)	Explain various variables used in C.	5M
	(b)	Write an algorithm and flowchart to check given number is Armstrong or not.	5M
3.	(a)	What is flowchart? Discuss about various symbols used in flowchart.	5M
	(b)	Describe the variables in c.	5M
4.	(a)	Write a C program to convert Decimal number into Binary number.	5M
	(b)	Explain C keywords and identifiers.	5M
5.	(a)	What is a data type? Discuss about the range for different data types.	5M
	(b)	What is variable? Discuss rules for how to define, declare and initialize a variable.	5M
6.	(a)	Write a C program to find whether the given number is palindrome or not.	5M
	(b)	Develop flowchart and algorithm for the above program	5M
7.	(a)	What is the difference between variable and constant? Explain with example.	5M
	(b)	Explain various '\' characters and conversion specifications in C.	5M
8.	(a)	Explain C Delimiters and Data Types.	5M
	(b)	Write algorithm & flowchart to find the sum of digits of a given number.	5M
9.	(a)	Discuss about type casting.	5M
	(b)	Write about character set of C.	5M
10.	(a)	Write a C program to find whether the given number is Prime or not.	6M
	(b)	Discuss the rules defined for variables in C.	4M

UNIT –II

Operators and Expressions, Input and Output in C, Decision Statements and Loop Control Statements

1. (a) Differentiate between iteration and branching.   5M

   (b) Write a C program to the day of the week using switch.   5M

2. (a) List and explain different types of operators in C.   6M

   (b) Write a C program to find primes in the given range.   4M

3. (a) Explain any two iterative statements with example.   6M

   (b) What is the usage of gets () and puts ().   4M

4. (a) Differentiate between *do while* and *while* loops?   5M

   (b) Write a C program to find the roots of quadratic equation.   5M

5. (a) Demonstrate the use of printf () and scanf () functions with an example.   5M

   (b) Differentiate between iteration and branching.   5M

6. (a) Explain the usage of getch () and getche () with example.   4M

   (b) Discuss about unconditional control statements with an example.   6M

8. (a) Write a C program to generate multiplication table for a given number.   5M

   (b) Explain about formatted input and output functions.   5M

9. (a) Explain about unformatted input and output functions.   5M

   (b) Discuss various formats of if statement.   5M

10. (a) Write a C program to generate Fibonacci series without using functions.   5M

   (b) Discuss the comma and conditional operators with example.   5M

UNIT-III
Arrays, Recursion and Strings

1.   What is an array? How is it initialized? How are the elements of two dimensional arrays stored? Comment on the accessing of the elements with example.   10M

2.   (a) Write a C program to display the entered array elements in reverse order.   5M

     (b) Define an array. How to declare and initialize one dimensional array?   5M

3.   (a) Write a C program to generate identity matrix for the given order.   5M

     (b) Define an array. How to declare and initialize two dimensional arrays?   5M

4.   (a) Define an array. What are characteristics of an array? in Java   5M

     (b) Write a C program to perform addition of two matrices.   5M

5.   What is an array? Explain types of arrays with examples.   10M

6.   (a) What is the difference between recursive and non-recursive functions? Give their merits and demerits.   5M

     (b) Write a recursive function to find the factorial of the given number.   5M

7.   (a) Write a recursive function to find GCD value.   5M

     (b) Describe the Towers of Hanoi problem. Write recursive function to solve the Towers of Honai problem with three discs.   5M

8.   (a) How the strings are declared and initialized? Discuss.   5M

     (b) Write a C program to find the length of a string without using string handling functions.

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9.   Explain various string handling functions with examples for each.   10M

10. (a) Write a C program to sort the given list of strings.   5M

     (b) Write a C program to check whether the given string is palindrome or not.   5M

UNIT-IV
Pointers, Functions and Storage Classes

1. How is dynamic memory allocation done in C? What library functions are provided by C for dynamic memory allocation? Discuss with example. 10M

2. (a) What is a pointer, pointer to a pointer and explain the advantages of using pointers? 5M

    (b) What is an array of pointers and pointers to an array? Summarize difference between both of them. 5M

3. Define function. Discuss various categories of functions based on arguments and return type and what are the different parameter passing methods in functions? 10M

4. Explain about different storage classes with examples along with scope rules. 10M

5. (a) How call by value is differ from call by reference? Discuss with an example. 6M

    (b) Give the recursive and non-recursive functions to find the factorial of a number. 4M

6. (a) What is user defined functions? Discuss with an example. 5M

    (b) Write a program to illustrate passing by address example. 5M

7. (a) Write a C program to compute ncr. 5M

    (b) Discuss the arithmetic operations with pointers. 5M

8. (a) How malloc () function differ from calloc () function. Illustrate with example. 5M

    (b) Discuss the automatic and static variables. 5M

9   (a) Define a function. How to pass arrays as parameters to a function? 5M

    (b) Write a C program to find LCM of two numbers using non-recursive function. 5M

10. (a) Write a C program that calculates sum of array elements where array elements can be accessed using a pointer to an array? 5M

    (b) Write C programs that illustrate the local static variables and functions. 5M

UNIT-V
Preprocessor Directives, Structures and Unions & Input and Output

1.	(a) Define structure? How to declare, initialize and access the structure elements.	5M
	(b) Discuss #define & #include directives.	5M
2.	Explain various C pre-processor directives	10M
3.	Write a program to maintain student information using structures.	10M
4.	What is a file? What are different types of files and explain?	10M
5.	(a) Explain about structures and functions.	5M
	(b) Write a C program to illustrate structures and functions.	5M
6.	(a) Explain Nested Structures with example.	5M
	(b) Difference between structure and unions.	5M
7.	What is union? How to declare and initialize unions? Discuss with examples.	10M
8.	(a) What are different operating modes of files? Explain with example.	5M
	(b) Discuss #indef and #error directives.	5M
9.	(a) Write a C program that copies the contents of one file into another file.	5M
	(b) Discuss about array of structures.	5M
10.	(a) Discuss typedef with example.	5M
	(b) Write short notes on unions within structures.	5M

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