

SRM VALLIAMMAI ENGINEERING COLLEGE

SRM Nagar, Kattankulathur – 603 203

(AN AUTONOMOUS INSTITUTION)

DEPARTMENT OF GENERAL ENGINEERING

QUESTION BANK



I SEMESTER

1901006-Programming in C

Regulation – 2019

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(Odd Semester)**

Prepared by

Mr. S.K. Saravanan,AP	Mr.M.Asan Nainar, AP
Dr.D.Sridevi,AP	Mr.N.Sowrirajan AP



QUESTION BANK

SUBJECT : Programming in C

SEM / YEAR: First Semester / 1stYear

UNIT I - BASICS OF C PROGRAMMING

SYLLABUS

Introduction to algorithm: Flowchart-Pseudo code- Introduction to programming paradigms- C programming: Data Types -Keywords-Variables and Constants- Operators and Expressions: Expressions -precedence,-associativity-Input/Output statements-Decision making and looping: Branching statement, Iterative statement - Compilation process.

PART – A

Q.No	Questions	BT Level	Competence
1.	Define an Algorithm	BTL -1	Remember
2.	What are the characteristic of an algorithm?	BTL -1	Remember
3.	Distinguish between an algorithm and a flowchart	BTL -2	Understand
4.	List the various symbols used to draw flowchart.	BTL -1	Remember
5.	Write a pseudo code to find maximum of three numbers.	BTL -1	Remember
6.	List the various keywords used to write pseudo code.	BTL -1	Remember
7.	Discuss the concept of the programming paradigm.	BTL -2	Understand
8.	What is meant by a data type? Give its classifications.	BTL -1	Remember
9.	Analyze why keywords are not to be used as identifiers.	BTL -4	Analyze
10.	Differentiate between variable and constant.	BTL -4	Analyze
11.	Show the use of ternary or conditional operator.	BTL -3	Apply
12.	Assess an expression.	BTL -6	Create
13.	Summarize the various types of C operators.	BTL-5	Evaluate
14.	Analyze Operators precedence.	BTL -4	Analyze

15.	Generalize the types of I/O statements available in 'C'.	BTL -6	Create
16.	Show the difference between while and do-while.	BTL -3	Apply
17.	Differentiate switch and nested-if statement.	BTL -2	Understand
18.	Invent what type of loop and how? #include <stdio.h> int main () { for(; ;) { printf("This loop will run forever.\n"); } return 0; }	BTL -5	Evaluate
19	Show the general form of a typical decision making structure found in C programming language.	BTL -3	Apply
20.	Discuss the compilation process	BTL -2	Understand
PART - B.			
1.	Explain how to design an algorithm with an example. (13)	BTL -1	Remember
2.	Draw a flowchart to find the max of three numbers and explain in detail. (13)	BTL -3	Apply
3.	Explain with an example how to write a pseudo code and discuss the advantages of Pseudo code. (13)	BTL -4	Analyze
4.	Describe the structure of a C program with an example. (13)	BTL -1	Remember
5.	Illustrate about the various data types in 'C' and write a C program to find the sum of 10 non-negative numbers entered by the user. (13)	BTL-3	Apply
6.	Explain the following: i. Keywords (4) ii. C character set (4) iii. Constants (5).	BTL -5	Evaluate
7.	(i)Explain the different types of operators used in 'C' with necessary program. (8) (ii)Write a C program to check the integer is Palindrome or not. (5)	BTL -1	Remember
8.	Discuss in detail about operator precedence and expressions with an example. (13)	BTL -2	Understand
9.	Write a C program for the following : (i). To check whether a given year is leap or not. (5) (ii). To find the roots of a quadratic equation. (8)	BTL -2	Understand
10.	Develop a C program for the following : (i). To find the area and circumference of a circle with radius r. (6) (ii). To find the sum of first 100integers. (7)	BTL -6	Create
11.	Write a C program for the following : (i). To find the sum of the digits of a number. (123 =>1+2+3=6.) (7) (ii).To find the sum of all odd / even numbers between 1 and100. (6)	BTL -4	Analyze

12.	Write a C program for the following : (i). To generate the first n numbers in a Fibonacci series. (7) To find the factorial of a given number. (6)	BTL -1	Remember
13.	Write a menu driven program in C to perform various arithmetic operations. (13)	BTL -4	Analyze
14.	Explain in detail the operation of various looping statements in C with suitable examples. (13)	BTL -2	Understand

PART-C

1.	Develop a C program for the following : (i) To check whether a number is prime or not.(8) (ii). To convert the temperature given in Fahrenheit to Celsius and vice versa.(7)	BTL -6	Create
2.	Compare and contrast branching and looping statements. (15)	BTL -5	Evaluate
3.	Develop a C Program to find the power of a Number Using the while loop and using pow() function.	BTL -6	Create
4.	Summarize on algorithm, flowchart and pseudo code with an example.(15)	BTL -5	Evaluate





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UNIT II -ARRAYS AND STRINGS			
SYLLABUS			
Introduction to Arrays: One dimensional array: Assigning an array to another array –Equating an array with another array-Two dimensional Arrays: Declaration-usage of two dimensional array-reading, storing and accessing elements in two dimensional array-memory representation-String operations: String library functions- list of strings-command line.			
PART - A			
Q.No	Questions	BT Level	Competence
1.	What is an array? Write the syntax for array.	BTL -1	Remember
2.	Define a float array of size 5 and assign 5 values to it.	BTL -1	Remember
3.	Identify the way to assign an array to another array.	BTL -4	Analyze
4.	List out the advantages of Arrays.	BTL -1	Remember
5.	What will happen when you access the array more than its dimension?	BTL -1	Remember
6.	How to create a two dimensional array?	BTL -2	Understand
7.	Point out an example code to express two dimensional array.	BTL -4	Analyze
8.	What is the method to equate an array?	BTL -3	Apply
9.	What are the different ways of initializing array?	BTL -2	Understand
10.	Distinguish between one dimensional and two dimensional arrays.	BTL -4	Analyze
11.	What is the use of '\0' and '%s'?	BTL -1	Remember
12.	Is address operator used in scanf() statement to read an array? Why?	BTL -6	Create
13.	What is the role of strrev()?	BTL -3	Apply
14.	Show a C function to compare two strings.	BTL -3	Apply
15.	How to initialize a string? Give an example.	BTL -6	Create

16.	What will be the output of following program ? #include <stdio.h> int main() { char str[8]="IncludeHelp"; printf("%s",str); return 0; }	BTL -2	Understand
17.	Write the output of the following Code: main() { char x; x = 'a'; printf("%d\n",x); }	BTL -5	Evaluate
18.	Specify any two applications of Array.	BTL -5	Evaluate
19.	List out the any four functions that are performed on character strings.	BTL -1	Remember
20.	Write the output of the following Code: main() { static char name[]="KagzWrxAd"; inti=0; while(name[i]!='\0') { printf("%c",name[i]); i++; } }	BTL -2	Understand
PART -B			
1.	(i)Write a C Program to take 5 values from the user and store them in an array(6) (ii)Write a C program to re-order a one-dimensional array of numbers in descending order.(7)	BTL -1	Remember
2.	How to Access elements out of its bound explain with an example(5) Write C program to count Array elements by using sizeof() operator.(8)	BTL-5	Evaluate
3.	Write a C program to calculate median for an array of elements.(13)	BTL -1	Remember
4.	Explain with an example how to copy all elements of an array into another array	BTL -4	Analyze
5.	Describe the following with suitable examples. (6+7) (i) Initializing a 2 Dimensional Array (ii) Memory Map of a Dimensional Array.	BTL -2	Understand
6.	Write a C program for transpose of a matrix.(13)	BTL -1	Remember
7.	Write a C program to add two 3X3 matrices(13)	BTL -4	Analyze
8.	Write a C program to sort the n numbers using selection sort.(13)	BTL -2	Understand

9.	Develop a C program to search an element from the array. (13)	BTL -6	Create
10.	Explain about the String Arrays and its manipulation in detail (13)	BTL -1	Remember
11.	Write a C program to find whether the given string is palindrome or not without using string functions. (13)	BTL -3	Apply
12.	(i) What are the different types of string function? Describe with their purpose.(5) (ii) Write the C program to find the number of Vowels, Constants, Digits and white space in a string.(8)	BTL -2	Understand
13.	Illustrate with an example of command line arguments.(13)	BTL -3	Apply
14.	Explain about various string handling functions with an example.	BTL -4	Analyze
PART-C			
1.	Write a C program to find average marks obtained by a of 30 students in a test.(15)	BTL -6	Create
2.	Write a program to find sum of diagonal elements of a matrix(15)	BTL -6	Create
3.	(i) Write a C program to strcpy function.(7) (ii) Compare and contrast gets() and puts().(8)	BTL -5	Evaluate
4.	Write a C program to check whether a given number is Armstrong number or not using command line argument.(15)	BTL -5	Evaluate





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UNIT III-FUNCTIONS			
SYLLABUS			
Introduction to functions: Classification of functions- function definition-function call-function with inputs and outputs-recursive function-library functions-scope of variables.			
PART - A			
Q.No	Questions	BT Level	Competence
1.	Define function.	BTL -1	Remember
2.	What are the various parts of functions?	BTL -1	Remember
3.	Express the difference between function declaration and function definition.	BTL -2	Understand
4.	What is function call?	BTL -1	Remember
5.	Write any two applications of recursive function.	BTL -1	Remember
6.	Differentiate between call by value and call reference.	BTL -4	Analyze
7.	Why is scope of variable necessary in function?	BTL -2	Understand
8.	Write a function in C to find the square root of any number.	BTL -1	Remember
9.	Point out the meaning of user-defined function.	BTL -4	Analyze
10.	What is meant by library function?	BTL -4	Analyze
11.	Develop no argument and no return value in a function.	BTL -6	Create
12.	Determine output: <pre>main() { int i = abc(10); printf("%d", --i); } int abc(int i) { return(i++); }</pre>	BTL -3	Apply
13.	What will be output of the following? <pre>#include <stdio.h> intincr(int i) {static int count = 0; count = count + i;</pre>	BTL -3	Apply

	<pre>printf("count=%d\n",count); } void main() { inti,j; for (i = 0; i <=4; i++) j = incr(i); }</pre>		
14.	<p>Invent the output of the following code:</p> <pre>#include<stdio.h> int A=2; int B=3; int Add() { return A + B; } int main() {int answer; A = 5; B = 7; answer = Add(); printf("%d\n",answer); return 0; }</pre>	BTL -6	Create
15.	What is a recursive function?	BTL -2	Understand
16.	Specify the need for function.	BTL -5	Evaluate
17.	<p>Point out the error in the program</p> <pre>#include<stdio.h> int main() { int a=10; void f(); a = f(); printf("%d\n", a); return 0; } void f() { printf("a"); }</pre>	BTL -5	Evaluate
18.	What is mean by formal and actual argument in a function?	BTL -1	Remember
19.	Narrate how to apply user-defined function.	BTL -3	Apply
20.	Mention the advantage of pass by reference.	BTL -2	Understand
PART – B			
1.	Describe about user defined function and predefined function with an example.(13)	BTL -1	Remember
2.	Write a code in C to get the smallest element of an array using function. Analyze the code with sample input 34,2,6,11 and 46.(13)	BTL -4	Analyze
3.	Apply a recursive function in C for reverse a sentence. (13)	BTL -3	Apply
4.	Discuss about the classification of functions depending upon their inputs and output (parameters).(13)	BTL -2	Understand

5.	Explain in detail about Pass by Value and Pass by reference. (13)	BTL -1	Remember
6.	Discuss about passing arrays to function. (13)	BTL -2	Understand
7.	Explain in detail about recursive function with sample code. (13)	BTL -5	Evaluate
8.	Analyze with example code in C for global and local variables . (13)	BTL -4	Analyze
9.	Write notes on fixed argument functions and variable argument functions. (13)	BTL -1	Remember
10.	Write the C program to find the value of $\cos(x)$ using the series up to the given accuracy (without using user defined function) also print $\cos(x)$ using library function. (13)	BTL -3	Apply
11.	Write a menu driven program in C for calculator using built-in functions(13)	BTL -4	Analyze
12.	Write a C program for cube of a number using pass by reference. (13)	BTL -1	Remember
13.	Write a C program to sort the given N names using function. (13)	BTL -2	Understand
14.	Explain about any 4 library functions in c with an example.(13)	BTL -6	Create
PART-C			
1.	Develop a C program for binary search using recursive function.(15)	BTL -6	Create
2.	Examine with example program to display all prime numbers between two intervals using functions. (15)	BTL -5	Evaluate
3.	Develop a C program for towers of Hanoi using recursive function.(15)	BTL -6	Create
4.	Illustrate the C coding for swapping of two numbers using pass by reference. (15)	BTL -5	Evaluate



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UNIT-IV- STRUCTURES AND UNIONS			
SYLLABUS			
Introduction to Structures :Array of structures – Nested structure-functions and Structures-Introduction to union-:practical applications of union —typedef and structures-enumerated data type.			
PART – A			
Q.No	Questions	BT Level	Competence
1.	What is structure?	BTL -1	Remember
2.	Where is Union used in C?	BTL -1	Remember
3.	How the members of structure object is accessed?	BTL -2	Understand
4.	How many bytes in memory taken by the following C structure? <pre>#include <stdio.h> struct test { int k; char c; };</pre>	BTL -1	Remember
5.	What is a nested structure?	BTL -1	Remember
6.	How typedef is used in structure?	BTL -4	Analyze
7.	Interpret the term Union in C.	BTL -2	Understand
8.	What is the output of this program? <pre>#include<stdio.h> void main() { enum days {MON=-1, TUE, WED=4, THU,FRI, SAT}; printf("%d, %d, %d, %d, %d, %d", MON, TUE, WED, THU, FRI, SAT); }</pre>	BTL -1	Remember
9.	Point out the meaning of array of structures.	BTL -4	Analyze
10.	Examine the output of the following program : <pre>#include<stdio.h> void main() { enum status {pass, fail, absent}; enum status stud1, stud2, stud3; stud1 = pass; stud2 = absent;</pre>	BTL -4	Analyze

	<pre> stud3 = fail; printf("%d %d %d\n", stud1, stud2, stud3); } </pre>		
11.	Specify the use of typedef.	BTL -3	Apply
12.	Determine the output of the following program: <pre> #include<stdio.h> void main() { union a { int i; char ch[2]; }; union a u; u.ch[0]=3; u.ch[1]=2; printf("%d, %d, %d\n", u.ch[0], u.ch[1], u.i); } </pre>	BTL -6	Create
13.	Discover the meaning of enum.	BTL -3	Apply
14.	Show the difference between Structures from Array.	BTL -3	Apply
15.	Invent the application of size of operator to this structure. Consider the declaration: <pre> struct { char name; intnum; } student; </pre>	BTL -6	Create
16.	Is it mandatory that the size of all elements in a union should be same?	BTL -2	Understand
17.	Develop a structure namely Book and create array of Book structure with size of ten.	BTL -5	Evaluate
18.	What will be the output of the C program? <pre> #include<stdio.h> int main() {enum numbers{n1 = 1.5, n2 = 0, n3, n4, n5, n6}; printf("%d %d\n", n1, n2); } </pre>	BTL -5	Evaluate
19.	What is the difference between enum and macro?	BTL -1	Remember
20	Can we declare function inside structure of C programming? Justify.	BTL -2	Understand
PART – B			
1.	Describe about the functions and structures. (13)	BTL -1	Remember
2.	Explain about the structures and its operations. (13)	BTL -2	Understand
3.	Examine the differences between nested structures and array of structures.(13)	BTL -3	Apply
4.	Write a C program using structures to prepare the students mark statement.(13)	BTL -2	Understand

5.	Write a C program to add two distances in feet and inches using structure (13)	BTL -2	Understand
6.	Write a C program to read the details of book name, author name and price of 200 books in a library and display the total cost of the books and the book details whose price is above Rs.500.(13)	BTL -1	Remember
7.	(i)Express a structure with data members of various types and declare two structure variables. Write a program to read data into these and print the same. (8) (ii)Justify the need for structured data type.(5)	BTL -3	Apply
8.	(i) Does structure bring additional overhead to a program? Justify.(7) (ii)Write short note on structure declaration.(6)	BTL -1	Remember
9.	(i).How to access enumerated datatype and explain with an example program.(7) (ii) Create enum of week days. Write a program in C, use this enum and display it. (6)	BTL -6	Create
10.	Explainwith an example the self-referential structure.(13)	BTL -4	Analyze
11.	Explain nested structure and write C Program to Implement the same. (13)	BTL -5	Evaluate
12.	Compare with example code for Structure and Union.(13)	BTL -4	Analyze
13.	Illustrate a C program to store the employee information using structure and search a particular employee details.(13)	BTL -1	Remember
14.	Define a structure called student that would contain name, regno and marks of five subjects and percentage. Write a program to read the details of name, regno and marks of five subjects for 30 students, calculate the percentage and display the name, regno, marks of the subjects and percentage of each student(13)	BTL -4	Analyze
PART-C			
1	Write a structure to store the name, account number and balance of customers (more than 10) and store their information. Write a function to print the names of all the customers having balance less than \$200.(15)	BTL -6	Create
2	Write a C program using structures to prepare the employee pay roll of a company.(15)	BTL -5	Evaluate
3	Write a C program for passing structures as function arguments and returning a structure from a function.	BTL -5	Evaluate
4	Develop a C Program to use the arrays inside union variables.(15)	BTL -6	Create



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UNIT-V- STORAGE CLASS AND PREPROCESSOR DIRECTIVE

SYLLABUS

Introduction to storage classes: Types of storage classes- C preprocessor Directives: Types of preprocessor directives-Pragma Directive-conditional directive.

PART – A

Q.No	Questions	BT Level	Competence
1.	Define storage class specifier.	BTL -1	Remember
2.	Mention different type of storage classes.	BTL -1	Remember
3.	Distinguish between auto and register storage class variables.	BTL -2	Understand
4.	What is meant by extern variable? Give an example.	BTL -1	Remember
5.	What is storage class for variable A in below code? Justify. <pre>int main() { int A; A = 10; printf("%d", A); return 0; }</pre>	BTL -1	Remember
6.	What will the SWAP macro in the following program be expanded to on preprocessing? Will the code compile? <pre>#include<stdio.h> #define SWAP(a, b, c)(c t; t=a, a=b, b=t) int main() { int x=10, y=20; SWAP(x, y, int); printf("%d %d\n", x, y); return 0; }</pre>	BTL -4	Analyze
7.	How are preprocessor directives written in C?	BTL -6	Create
8.	How can you avoid including a header more than once?	BTL -1	Remember
9.	What are the types of C preprocessor Directives?	BTL -4	Analyze
10.	Compare the pragma and conditional directive.	BTL -4	Analyze
11.	Examine the six pragma directives.	BTL -3	Apply

12.	Write the syntax of pragma directive.	BTL -2	Understand
13.	Is there any difference that arises if double quotes , instead of angular brackets are used for including the standard header file?	BTL -3	Apply
14.	Identify the use of pragma directive in c.	BTL -3	Apply
15.	List out the seven conditional directives in c.	BTL -1	Remember
16.	What is the use of #if directive?	BTL -2	Understand
17.	Write a note on define macro.	BTL -5	Evaluate
18.	Evaluate the advantages of a macro over a function.	BTL -5	Evaluate
19.	Develop an example for conditional compilation.	BTL -6	Create
20	What does #undef, #pragma indicate in c?	BTL -2	Understand
PART – B			
1.	Describe about the register and static storage classes with example program.(13)	BTL -2	Understand
2.	Distinguish between the following macro. (i)object like macro(7) (ii)function like macro(6).	BTL -2	Understand
3.	Illustrate and explain about unconditional preprocessor directive.(13)	BTL -3	Apply
4.	Explain about #if, #else, #elif directive with an example program.(13)	BTL -2	Understand
5.	Describe the defined operator and #error directive .(13)	BTL -1	Remember
6.	Define a macro in C to check whether a given three-digit number is an Armstrong number or not. Illustrate the use of this macro in a program. (13)	BTL -1	Remember
7.	Write about conditional preprocessor directive with an example.(13)	BTL -3	Apply
8.	Define a macro in C to check whether a given number is even or odd. Illustrate the use of this macro in a program. (13)	BTL -1	Remember
9.	Write about all the pragma directive and explain in detail.(13)	BTL -6	Create
10.	Write the C coding for finding the average of number using any of the storage class declarations.(13).	BTL -4	Analyze
11.	Explain the various ways in which a source file inclusion directive can be written.(13)	BTL -5	Evaluate
12.	Examine the various stages a program undergoes before execution.(13)	BTL -4	Analyze
13.	Write a C Program to calculate the factorial of a number by using the keyword static.(13)	BTL -1	Remember

14.	Write a C Program to generate Fibonacci series by using keyword auto.(13)	BTL -4	Analyze
PART-C			
1	Describe all storage class variables with programming examples.	BTL -6	Create
2	Write preprocessor directives code in C for roots of a quadratic equation. (15)	BTL -5	Evaluate
3	Develop a C Program based on conditional directive to display the Distinction, First class and Second class based on the student mark is above 70, between 60 to 70 and between 40 to 60 respectively otherwise Fail. (15)	BTL -6	Create
4	Summarize of storage classes with respect to various parameters storage location, initial value, lifetime and linkage .(15)	BTL -5	Evaluate

