C programming for Problem Solving[18CPS13/23]

QUESTION BANK   PREAPRED BY: Dr.Jyoti Metan

Module 1 : Introduction to Computer Hardware & Software

Sl. No	Questions	Marks & Year
1	What is **Computer**. Describe the various types of computers	**6 Marks Jan 19, Model Qp,**
2	What are **input devices** ? Mention and explain any two input devices	6 Marks ,**Model Qp**
3	What is **software**? Explain different types of software.	
4	With a neat diagram explain the basic structure of a computer	
5	What is **pseudocode**? Explain with example ,how it is used as a problem solving tool	6 Marks, **ModelQp,** Jan 15,
	Define pseudocode. Write a pseudocode to find the sum and average of given three numbers	5 Marks, Jun 16
6	Define **Algorithm**. Write an algorithm to find the area and perimeter of a circle	6 Marks, Jan 17
	What is an Algorithm? Write an algorithm to find the largest of 3 numbers	6 Marks, Jan 16
	Compare pseudocode with an algorithm	5 Marks,Jun 16
7	Define **flowchar**t. Explain with an example	5 Marks, ModelQp
	Draw the flowchart and write a C program to compute simple interest	4 marks,Jan 17, **6 Marks Jan 19**
8	Explain the basic **structure of a C program** with an example	5 marks, Jan 15,16 **10 Marks Jan 19**
	Explain the block structure of a C program	8 Marks,Jan 17
	Write the general structure of C. Explain with an example	6 Marks, Jan 17
9	What is **Token**? What are the different types of token available in C language	6 marks Jun 15,
10	Write and explain the basic concepts of a C program	8 Marks, ModelQp
11	What is an **identifier** (variable)? What are the rules to construct identifier (varible)? Classify the following as valid/invalid Identifiers. i) num2 ii) $num1 iii) +add iv) a_2 v) 199_space vi) _apple vii)#12	6 Marks, Jun 16
	What is **variable**? List the restrictions on the variable names	6 Marks, Jan 17
	Define variable. Explain the rules for constricting variables in C language.	**4 Marks Jan 19**
	Define i)variable ii) Constant iii) Associativity iv)Precedence	8 Markas, Jan 15
13	Explain with example, the various constants available in 'C' language	5 Marks, Jan 17
14	List all the **operators** used in C. Give examples	8 Marks ,Jun 16
	Explain any five operators used in C language	10 Marks, Jan 15
	What is an operator? List and explain various types of operators	10 Marks, Jun 15
	Explain the following operators in C language i) Relational ii) Logical iii) Conditional	6 Marks, jan 16
15	What is an assignment statement? Give the general form of an assignment statement	5 Marks, Jan 17
16	What are basic **data types** available in 'C'? Write the significance of each data type	6 Marks, Jan 17
	Write a C program that computes the size of int, float, double and char	5 marks, ModelQp

	variables	
17	What is **type conversion**? Explain two types of conversion with examples	6 Marks, Jan 15
20	What are the formatted **input and output functions**. Explain with examples	6 marks, modelQp
	Write the guidelines to use scanf() and printf() functions in C language	8 Marks, ModelQp
	What is the purpose of **scanf() and printf()** statement ?	8 marks, Model Qp
21	Write a C program in C to find the area and perimeter of a circle	4 Marks, ModelQp
22	Write a program in C to print the numbers from 4 to 9 and their squares	4 Marks, ModelQp
23	Write a C program in C to find the area and perimeter of a rectangle	6 Marks, Jan 15
24	Write a C program which takes as input p,t,r. Compute the simple interest and display the result	6 Marks, Jan 16
25	Write a C program to find the area of triangle when we know the lengths of all three of its sides	5 Marks, ModelQp
26	Write a C program to find the largest of three numbers using ternary operator	5 marks, Jun 16
27	What is an expression? Evaluate the following expressions 　i)　$100 \% 20 < = 20 - 5 + 100 \% 10 - 20 = = 5 > = 1 \mathrel{!=} 20$ 　ii)　a + = b * = C - = 5 where a=3 b=5 and c=8	4 marks, Jan 16
28	Convert the following mathematical expression into C equivalent 　i)　area= s(s-a)(s-b)(s-c) 　ii)　$x = -b + b^2 - 4ac$	4 Marks Jan 17

Module : II Branching & Looping

Sl. No	Questions	Marks & Year
1.	List all conditional control statements used in C. Explain any two with syntax and example	6 Marks, Jan 17,
2.	Write a C program that reads from the user an arithmetic operator and two operands, perform the corresponding arithmetic operation on the operands using switch statement	6 Marks, Jan 17
3.	Implement a C program to find the reverse of an integer number and check whether it is palindrome or not	8 Marks, Jun 16, Jan 17,
4.	What are unconditional control statements? Explain any two with syntax and example	Jan 17,
5.	Write a C program to find the biggest of three numbers	6 Marks, Jun 16
6.	Explain switch statement with syntax and example	8 Marks, Jun 16
7.	List the differences between while loop and do-while loop. write a C program to find sum of Natura numbers from 1 to N using for loop	8 Marks, Jun 16
8.	Write a C program to find the factorial of a number using do-while ,where the number **n** is entered by user.	8 Marks, Jun 16
9.	What is two way selection statements? Explain if, if else, and cascaded if-else with examples.	8 Marks, Jan 16
10	Write a C program that takes from user an arithmetic operator ('+', '-', '*', or '/') and two operands . Perform corresponding arithmetic operation on the operands using switch statement	8 Marks Jan 16
11	Explain with example ,the meaning of statement and block in a 'C' program	5 Marks, Dec 16
12	Write a 'C' program to demonstrate the use of unconditional goto statement	6 Marks, Dec 16
13	Explain with syntax ,if, if-else and nested if-else statements in 'C' program	9 Marks, Dec 16
14	Explain with syntax , the different loops used in 'C' program	9 Marks, Dec 16
15	Write a program in 'C' to find the sum of 'n' natural numbers without using any loops	6 Marks ,Dec 16
16	Write a C program that takes three coefficients (a,b,and c) of a quadtatic equation ; (ax^2+bx+c) as input and compute all possible roots and print them with appropriate messages.	10 Marks, Dec 14
17	Show how break and continue statements are used in a C program, with example	4 Marks, Dec 14
18	Explain with examples formatted input output statements in C	6 Marks, Jun 15
19	Write a C program to find GCD of two numbers using ternary operator and for loop	8 Marks, Model QP
20	Write a calculator program in C language to do simple operations like addition, subtraction, multiplication and division. Use switch statement in your program	8 Marks, Model QP
21	What is dangling else problem? Explain how to handle tis in C programming	6 Marks, Jun 16

Module : III Array and Strings

Sl. No	Questions	Marks & Year
1	What is **array** ? Explain the declaration and initialization of one dimensional and two dimensional array with an example	10Marks Jan 2019 6 Marks,Jan-2017, Jan-2016,Model QP
	Define array.Explain with suitable example how to declare and initialize 1D array	10 Marks Jun 2019
2	Write a C program to read N integers into an array A and to find the (i)sum of odd numbers,(ii) sum of even numbers,(iii) average of all numbers. Output the results computed with appropriate headings	6 Marks Jun 2015,
3	Write a C program to search an element using linear and binary techniques	10 Marks Jun 2019
	Write a C program for [consider integer data] (i) Bubble sort (ii) Linear search	10Marks Jan 2019
	Write a C program to read N numbers into an array & perform Linear search	8M ,VTU ModelQP
	Write an algorithm and develop a C program that reads N integer numbers and arrange them in ascending order using selection Sort	8M ,VTU ModelQP
	Write an algorithm and develop a C program to search an integer from N numbers in ascending order using binary searching technique	8M ,VTU ModelQP
4	Write a C program to find the transpose of a given matrix	10Marks Jan 2019
5	Write a C program that accepts (3×3 ordered matrices A and B),and compute the following (i)summation of Two numbers (ii) Subtraction of Two numbers	8 Marks ,ModelQp
6	Write a C program to find the sum and average of n integer numbers	5 Marks,ModelQp
7	Write a C program to find the largest element in an array	6M, VTU Model Qp
	Write a C program to find the greatest number from two dimensional array	6 Marks ,Model Qp
8	Write a C program to sort the elements by passing array as function argument	8 Marks,Jan 2016
9	Define **string**. How string is declared and initialized ? Explain string input/output functions with an example	6M ,VTU ModelQP
10	What is string **?** Write a C program that reads a sentence and prints the frequency of each of the vowels and total count of consonants?	6 Marks, Jan 2017
11	Write a C program to eliminate multiple spaces from a sentence and make it single	10 Marks,ModelQp
12	Explain with syntax and example ,the different string manipulation library functions with example	5 or 10 Marks, Jan 2017, ModelQp
	Define a string. Explain any 4 string library functions with syntax and example	10 Marks Jun 2019
	Explain string manipulation library functions with their syntaxes	6M, VTU Model Qp
13	Define string. List out all string manipulation function. Explain any two with example	10Marks Jan 2019
14	Write a C Program to implement string copy operation STRCOPY(str1,str2)	6 Mrks,

	that copies string str1 to another string str2 without using library function	Jan 2017
	Write a C program to copy a string (combination of digits and alphabet) to another string (only alphabets)	10 Marks Jun 2019
15	Write a program to replace each constant in a string with the text one except letter 'z' 'Z' and 'a' 'A' . Thus the string "Programming in C is fun" should be modified as "Qsphsannjoh jo D jt gvo".	6 Marks , Jan 2016
16	Write a C program to concatenate two strings without using built-in function strcat()	8 MarksJan2016 6M,VTU Model Qp
17	Explain with example (i) Character string (ii) String literal (iii) storage classes	6 Marks,Jan 2017
18	How string is declared and initialized? Explain any four string manipulation functions with examples	8 Marks Jun 2015
19	Write a C program to check whether the given string is palindrome or not without using in built function	8M, VTU Model Qp
20	Write a C program to search a name in a given list using binary search technique	10 Marks,Jun 2016

Module IV : Functions & Recursion

1	**What is function** ? Explain the difference between user defined and library functions	6M, VTU Model QP
2	Explain the different elements of user defined functions in detail	8M, VTU Model QP
	Explain function call, function definition and function prototype with examples	6 Marks, Jun 2015
3	What is function? Write a function to find the sum of two numbers	6 Marks ,Jan 2015
4	Explain two categories/types of argument passing techniques, with examples	6 Marks ,Jan 2015
	Differentiate between call by value and call by reference with examples	6M,VTU ModelQP
5	Explain the classification of user defined functions	
	Define a function. List and explain the categories of user defined functions	10 Marks Jun 2019
	What is function? Explain the type of functions based on parameters	10Marks Jan 2019 6 Marks,Jan 2017
	What is function? Explain different classification of user defined functions based on parameter passing and return type with examples	12M,VTU ModelQP
6	Write a C function isprime(num) that accepts an integer argument and returns 1 if the argument is a prime or 0 otherwise. Write a program that invokes this function to generate prime numbers between the given ranges	8 Marks ,Jan 2015
	Write a c-program using function to check whether the given number is prime or not.	4 M,VTU ModelQP
7	Write a program in 'C' using functions to swap two numbers	8 Marks, Jan 2017,
	Write a program in C using functions to swap two numbers using global variables concept and call by reference concept.	6M,VTU ModelQP
8	What are actual parameters and formal parameters? Illustrate with example	6 Marks, Jun 2015
9	Write a C program to find the factorial of a number using functions	10Marks Jan 2019
10	Write a program to find GCD and LCM of two numbers using concept of functions	10Marks Jan 2019
11	Give the scope and life time of the following (i)External variable (ii) Static variable (iii) Automatic variable (iv) Register variable	10Marks Jan 2019
12	What are the three possibilities of defining a user defined functions in 'C'?	6 Marks, Jan 2017
13	What is **Recursion**? Write a C program to compute polynomial co-efficient n_{Cr} using recursion	4 marks,Jan 2017
	Write a C program for evaluating the binomial coefficients using a function factorial(n)	10 Marks Jun 2019
	Write a C program to find the binomial co-efficient a number using recursion	8M,VTU ModelQP
14	Define a recursion . Write a C recursive function for multiplying two integers where a function call is passed with two integers m and n	10 Marks Jun 2019
15	Write a C program to check a number is a prime or not using recursion	5 Marks, Jan 2016
16	Write a C program to find the factorial of a number using recursion	5 Marks, Model Qp
17	Explain recursion. and write a program to find n^{th} term of Fibonacci series	10Marks Jan 2019
		6M, VTU

	Write a C program to calculate the Fibonacci sequence using recursion functions	ModelQP
	Write a c-program using functions to generate the Fibonacci series.	8M, VTU ModelQP
18	What is recursion? Explain. Write a c-program using recursive function for Binary to Decimal Conversion.	10M,VTU ModelQP

Module: V   Structures , Pointers, Preprocessor Directives

Sl. No	Questions	Marks & Year
1	What is **structure**? Explain the C syntax of structure declaration with example	5 Marks, Jan 2017, Jun 2016,ModelQp
2	Explain array of structure and structure within a structure with an example	6 marks, Jan 2017, Jun 2016, Jan 2015
3	Write a C program to maintain a record of 'n' students details using an array of structures with four fields(roll no,name,marks,and grade).Assume appropriate data type for each field. Print the marks of the student given the student name as input.	6 marks, Jan 2017
4	Write a C program to pass structure variable as function argument	7 marks,Jan 2016, Jan 2015
5	Write a C program to store and print name, USN, subject and IA marks of students using structure	8 marks, Jan 2016
6	Explain the difference between array and structures	5 Marks, Jan 2017
7	Explain with example how to create a structure using 'typedef'	5 Marks, ModelQp
8	Write a program to maintain a record of 'n' employee detail using an array of structures with three fields(id, name , salary) and print the details of employees whose salary is above 5000	7 marks, Jun 2016
9	What is **pointer** ? Explain how the pointer variable declared and initialized?	4 Marks, ModelQP, Jun 16,Jan 2017, Jun 2015
10	Explain the array of pointes with example? or Explain how pointers and arrays are related with example	4 Marks, ModelQP, Jan 2017, Jun 2016
11	What is a pointer? Write a C program to find the sum and mean of all elements in an array using pointer	8 marks, Jan 2016
12	Write a C program to swap two numbers using call by address(pointers or reference) method	6 Marks, Jan 2016, Jun 2015
13	Write a C program using pointers to compute the Sum, Mean and Standard deviation of all elements stored in an array of 'n' real numbers	6 Marks, Jan 2017, Jan 2015
14	What is pointer? give the advantages and disadvantages of pointer data type	8 Marks ,ModelQP
15	What is **preprocessor directive**? Explain #define and #include preprocessor directives	8 Marks, ModelQp, Jan 15,16, 17, Jun 15
16	Explain any five preprocessor directives in C	
17	List and explain compiler control directives	
18	What is a macro ?Write a macro to determine whether the given number is odd or even	6 Marks,ModelQp
19	Write a 'C'' program to define macros for logical operators	8 Marks,Jan 17