



**VALLIAMMAI ENGINEERING COLLEGE**  
**SRM NAGAR, KATTANKULATHUR – 603 203**  
**FIRST SEMESTER B.E / B.Tech. (Common to all Branches)**  
**QUESTION BANK - GE 6151 – COMPUTER PROGRAMMING**  
**ACADEMIC YEAR 2016-17(ODD SEMESTER)**



**UNIT I - INTRODUCTION**

Generation and Classification of Computers- Basic Organization of a Computer –Number System – Binary – Decimal – Conversion – Problems. Need for logical analysis and thinking – Algorithm – Pseudo code – Flow Chart.

**PART – A**

<b>S. NO</b>	<b>QUESTIONS</b>	<b>BTL</b>
1.	State the various characteristics of computers. (Dec 2011)	1
2.	What do you think about Super Computer? Give an example.	6
3.	Give the advantages and disadvantages of using the first generation computers?	2
4.	List some important hardware and software technologies of fifth generation computers. (June 2014)	1
5.	List the advantages and disadvantages of third generation computers.	1
6.	List out the classifications of computer.	1
7.	Explain different components of a computer? (Dec2014)	2
8.	Compare RAM and ROM.	4
9.	List down the various types of storage devices. (Dec2011)	1
10.	Solve: Convert $(1011101)_2$ to octal. (Jan 2016)	3
11.	Solve the binary and octal equivalent of hexadecimal number 7BD. (Jun2009(FOC))	3
12.	Perform the following converters :65.55 <sub>(10)</sub> to binary (Dec2011(FOC))	5
13.	Solve: Convert 0.4375 decimal to binary system (Jan 2010)	3
14.	Distinguish between program and algorithm.	2
15.	Explain an algorithm to compute the factorial of a number.	4
16.	Differentiate between algorithm and pseudo code. (Jan 2016)	4
17.	Design a flow chart to find biggest of two numbers. (June 2014)	5
18.	What do you think about flow chart? Why is flow chart required? (Dec 2014)	6
19.	Write the pseudo code to find the given year is a leap year or not.	1
20.	Give the advantages and limitations of Pseudo code.	2

**PART – B**

<b>S. NO</b>	<b>QUESTIONS</b>	<b>BTL</b>
1.	Describe in detail about various generations of computers. (16) (May 2015)	1
2.	(i) Explain the basic organization of a computer with neat diagram(12) (May 2015) (ii) Explain the need for Logical Analysis with an example in brief. (4) (Dec 2014)	4
3.	(i) Describe in detail about the classification of computers with their features and limitations(10) (ii) Describe the characteristics of computers in detail.(6) (Dec 2011)	1
4.	(i) Assess various types of memories used in computer.(10) ( Jan 2011) (ii) Explain the evolution of computers (6)	6
5.	Solve the following: (i) Convert $(6245.14)_8$ to its decimal equivalent. (4) (ii) Convert $(111001.101)_2$ to its decimal equivalent. (4) (iii) Convert $(59.6825)_{10}$ to its binary equivalent. (4) (iv) Convert the following numbers into their binary equivalent. (4) a. $(FAC)_{16}$ b. $(561)_8$	3
6.	(i) Explain the positional number system with base.(7) (Dec 2011) (ii) Convert the following numbers into decimal:(9) (Dec 2011) (1) $(1111011.111)_2$ (2) $(647.34)_8$ (3) $(CAF)_{16}$	2



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7.	Design an algorithm and flowchart to simulate the railway ticket booking process.(16) (Jan 2016)	5
8.	(i)Discuss the steps involved in computer programming (8) (ii)What is pseudo code? Write a pseudo code for swapping two numbers without using temporary storage. (8) (Dec 2014)	2
9.	Explain sequence logic, selection logic and iteration logic design structure in pseudo code (16) (Jan 2011)	4
10.	i)Explain an algorithm to print the Fibonacci series(8) (June 2009) (0,1,1,2,3,5,8,13,...) ii)Explain an algorithm to find the largest of three numbers.(8) (Jan 2013)	2
11.	i)Construct the flowchart for finding the roots of a quadratic equation.(8) (Jan 2013) (ii) Construct a flow chart to find sum of first 100 natural numbers.(8)	3
12.	(i) Explain the different symbols used in flow chart. Develop a flow chart to find the sum of first 50 odd numbers(12) (Dec 2011) (ii)Explain the advantages and disadvantages of pseudo code.(4)	4
13.	(i) Write pseudo code to sort the given N integer numbers in descending order.(8) (ii)Write a pseudo code for calculating compound interest(8) (June 2009)	1
14.	Describe the guidelines in detail while drawing a flowchart with examples and list out the merits and demerits of flowchart. (16)	1

**UNIT II - C PROGRAMMING BASICS**

Problem formulation – Problem Solving - Introduction to ‘ C’ programming fundamentals structure of a ‘C’ program – compilation and linking processes – Constants, Variables –Data Types – Expressions using operators in ‘C’ – Managing Input and Output operations – Decision Making and Branching – Looping statements – solving simple scientific and statistical Problems

**PART – A**

<b>S. NO</b>	<b>QUESTIONS</b>	<b>BTL</b>
1.	Illustrate the structure of a C program.(June 2014)	3
2.	Explain why header files are included in ‘C’ programming.	2
3.	State the importance of keywords in C? (May 2015)	1
4.	List different data types available in C. (June 2014)	1
5.	What do you think about variable? Give an example.(Dec 2014)	6
6.	List various types of C Operators. (Jan 2014)	1
7.	Construct an example for Ternary operator. (Dec 2014)	5
8.	Distinguish between ++a and a++.	4
9.	Define linking process.(Jan 2016)	1
10.	Explain Logical AND and Bitwise AND?	4
11.	List out the various input and output statements in C. (May 2015)	1
12.	Distinguish statements while-do from do-while statements. (Jan 2013)	4
13.	Compare switch( ) and nested-if statement.	2
14.	List out the jump statements available in C and its uses. (June 2014)	1
15.	Explain for loop with an example	2
16.	Difference between while (a) and while (! a)?	2
17.	Illustrate the use of sizeof( ) operator with an example	3
18.	Construct C program to find factorial of a given number using iteration. (June 2014)	5
19.	Differentiate break and continue statement.	2
20.	Illustrate continue statement with an example	3



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**PART – B**

<b>S. NO</b>	<b>QUESTIONS</b>	<b>BTL</b>
1.	(i) Describe the structure of a C program with an example program. (16) (Jan 2016)	1
2.	(i) Describe in detail about different data types in 'C' with suitable examples. (8) (ii) Define constants. Explain the various types of constants in C. (8) (May 2015)	2
3.	Explain the different types of operators available in C with example.(16) (May 2015)	4
4.	(i) Construct and explain the concept of operator precedence and associativity of operators with examples.(8) (ii) Explain the bitwise operator with an example.(8)	3
5.	Explain the following: (4+4+4+4=16) i. Keywords ii. Identifiers iii. C character set iv. Expressions.	4
6.	(i) Describe the different type of format specifiers.(8) (ii) Write a C program to generate Armstrong number between 100 and 999. (8)	1
7.	(i)Write a program to check whether a given number is prime or not. (8) (June 2014) (ii)Write a C program to find sum of digits of an integer.(8) (June 2014)	1
8.	What do you think about the various looping statements explain with suitable examples.(16) Jan 2016	6
9.	(i)Write short note on branching statements in C (8) (Jan 2016) (ii) Explain briefly about the input and output functions in C. (8)	1
10.	(i)Explain switch case statement with suitable example(6) (ii)Give the syntax of 'for' statement and explain with suitable example.(6) (iii)Differentiate between signed and unsigned integer.(4)	4
11.	(i) Illustrate with examples and describe the statements used for selection and iteration in 'C' (16)	3
12.	(i)Explain a C program to find roots of a quadratic equation. (8)June 2014 (ii)Differentiate entry and exit checked conditional constructs with an example (8)June 2014	2
13.	Write short notes on the following with an example: (6+5+5) a. 'for' loop b. 'while' loop c. 'do...while' loop	1
14.	(i) Construct a C program that reads a character and displays only the vowels using switch case structure.(8) ii) Construct a program in C language for listing and counting all the numbers divisible by 3 and not by 5 from 1 to 100 (8)	5

**UNIT III - ARRAYS AND STRINGS**

Arrays – Initialization – Declaration – One dimensional and Two dimensional arrays. String – String operations – String Arrays. Simple programs – sorting – searching –matrix operations.

**PART – A**

<b>S. NO</b>	<b>QUESTIONS</b>	<b>BTL</b>
1.	What is an array? Give an example. (May 2015)	1
2.	What are the different ways of initializing array?	1
3.	Declare a float array of size 5 and assign 5 values to it (Dec 2014)	1
4.	State any four features of arrays.	1
5.	What is a base address? How it is accessed for a one dimensional array?	3
6.	Illustrate with an example code to express two dimensional array.(June 2014)	3
7.	Illustrate with example for multi-dimensional array.	3
8.	Compare one dimensional and two dimensional arrays.	2



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9.	Is it possible to declare an array subscript with float data type?	4
10.	Construct a -C program to store Fibonacci series in an array. (Jan 2016)	5
11.	Describe how is a character string declared? (May 2015)	2
12.	Describe with an example for initialization of string array. (Dec 2014)	2
13.	List any four string handling functions. (June 2014)	1
14.	List the operations that can be performed on strings.	1
15.	Explain a function to calculate number of letters in a given string.	4
16.	Assess how do you define an array to store the age of 100 students?	6
17.	Differentiate between Linear search and Binary search.	4
18.	Give the role of strev ().	2
19.	Assess how address operator used in scanf () statement to read an array? Why?	6
20.	Test the output of the following Code: main() { char x; x = 'a'; printf(“%d \n”,x); }	5

**PART – B**

<b>S. NO</b>	<b>QUESTIONS</b>	<b>BTL</b>
1.	(i) Explain and write a C program to arrange the given 10 numbers in ascending order.(10) (May 2015) (ii) Explain the need for array variables. Describe the following with respect to arrays: Declaration of array and accessing an array element. (6)	4
2.	(i) Describe and write a C program to add two matrices.(10) (May 2015) (ii) Describe and write a C program to search a given number in an array element.(6) (May 2015)	2
3.	(i) State a C program to multiply two 3 x 3 matrices.(10)( June 2014) (ii) Write a C program to find the determinant of the resultant matrix.(6) (June 2014)	1
4.	Construct a c program to subtract two matrices and display the resultant matrix using C Program. (16)	3
5.	(i) Describe a C program to multiply two matrices. (8) (Dec 2014) (ii) Explain the various string operations. Write a C program to find out the length of the string without using built in function. (8)(Dec 2014)	2 4
6.	(i) Write a C program to reverse a string.(8) ii) Write a C program to find the transpose of a matrix(8)	1
7.	Construct a C program to merge two sorted array into a single sorted array (16)	3
8.	Describe and write a C program to count the number of characters, spaces,vowels, constants and others using string functions. (16)	2
9.	(i) Construct a C program to find average marks obtained by a of 30 students in a test.(10) (ii).Write short notes on Reading and Writing string. (6)	5
10.	Assess the following programs: (i)to sort a given set of strings alphabetically.(6) (ii)to print whether each word is a palindrome or not.(6) (iii)to count the length of each string. (4) (Jan 2014)	6
11.	Explain the following functions with examples. (4+4+4+4=16) (i) strlen() (ii) strcpy() (iii)strcat() (iv)strcmp()	4
12.	(i) Explain in detail about insertion sort(8) (ii) Describe in detail about selection sort(8)	4 2



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13.	(i) Explain bubble sort Algorithm(8) ii) Sort the following numbers using bubble sort 50, 10, 45, 95, 14, 77, 84, 32 (8)	1
14.	Describe in detail about linear search and binary search with example programs and Algorithm(16)	1

**UNIT IV - FUNCTIONS AND POINTERS**

Function – definition of function – Declaration of function – Pass by value – Pass by reference – Recursion – Pointers – Definition – Initialization – Pointers arithmetic – Pointers and arrays – Example Problems.

**PART – A**

S. NO	QUESTIONS	BTL
1.	State what is the need for functions?(Jan 2014)	1
2.	Write the syntax for function declaration	1
3.	Differentiate Library function and User Defined function. (June 2012)	2
4.	Illustrate with an example what is a function call?	3
5.	Distinguish between pass by value and pass by reference? (June 2014)	2
6.	Compare actual parameters and formal parameters. (May 2015)	4
7.	Illustrate library functions with two examples (Dec 2010)	3
8.	Explain What is the need for dynamic memory allocation? How it is achieved in C program? (June 2012)	4
9.	What do you think about Recursion?(June 2014)	6
10.	Distinguish Tail and Non Tail recursion	2
11.	Construct a program to print the first 50 prime numbers recursively. (Jan 2016)	5
12.	Describe the significance of pointers. (Jan 2016)	2
13.	Define void pointer and null pointer.	1
14.	State why pointer arithmetic not applicable on void pointer?	1
15.	Explain how is pointer variable initialized?( June 2013)	4
16.	List the operations that can be performed over pointers.	1
17.	Assess the uses of pointers.( Jan 2014)	6
18.	Solve and find the output of the following program? (May 2015) main ( ) { int a=8, b=4, c, *p1=&a, *p2=&b; c=*p1**p2-*p1/*p2+9; printf(“%d”,c); }	3
19.	Construct how do you access the value through a pointer to a pointer?(Dec 2011)	5
20.	Describe the advantages of using pointers in a program.(Dec 2012)	1

**PART – B**

S. NO	QUESTIONS	BTL
1.	(i) Write a C program to find the factorial of a given number using function.(8)(May 2015) (ii) Write a C program to find all the duplicates in an array of numbers using pointers.(8)	1
2.	Discuss about the classification of functions depending upon their inputs and output parameters (16)	1
3.	i) Construct a recursive program to find G.C.D. of two integers?(8) ii) Describe in detail about function with and without arguments with example for each.(8)	3 2



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4.	Explain and write a program to generate Fibonacci series using recursive function(8) Explain user defined function working methodology with an example(8)	4
5.	Devise the following operations Using function i)Addition ii) subtraction iii) Multiplication iv)Division (4+4+4+4=16)	5
6.	Explain in detail about Pass by Value and Pass by reference with an example (16)	4
7.	Write notes on fixed argument functions and variable argument functions (16)	1
8.	(i)Construct a C program to find the sum of the digits using recursive function(8) (May 2015) (ii)Describe a C program using pointers to read in an array of integer and print its elements in reverse order.(8) (May 2015)	3 2
9.	Construct a C program to calculate the area of any four shapes using pointers(16)	3
10.	What is recursion? Describe a recursive function with suitable example. Write an iterative and recursive function to find the power of a number. (16) (Dec 2014)	2
11.	Write a C program to swap the content of two variables using pointers. (8) (June 2014) Explain the use of pointers in arrays with suitable example. (8) (June 2014)	1
12.	(i)Explain What the difference between call by value is and call by reference? What are the problems associated with each? Explain with suitable examples.(8)(Jan 2016) (ii)Explain what are the advantages of using recursion? Demonstrate with examples. (8) (Jan 2016)	4
13.	Explain in detail about pointer arithmetic. Support your answer with appropriate examples. (16) (Jan 2016)	2
14.	Assess how can you pass a array as a parameter in C. Give an example(16)	6

**UNIT V - STRUCTURES AND UNIONS**

Introduction – need for structure data type – structure definition – Structure declaration – Structure within a structure - Union – Programs using structures and Unions – Storage classes, Pre-processor directives.

**PART-A**

S. NO	QUESTIONS	BTL
1.	Define structures.(May 2015)	1
2.	Compare structure from array.(June 2012)	4
3.	Explain how to access the structure variables.	2
4.	Write Syntax for structure declaration.	1
5.	Illustrate member operators with an example.	3
6.	Construct a structure called ID _Card to hold the details of a student. (Jan 2016)	5
7.	If we have structure B nested inside structure A, when do we declare structure B?	5
8.	Consider the declaration: <pre>struct { char name; int num; } student;</pre> Illustrate the application of size of operator to this structure.	3



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9.	Differentiate between structure and union. (Jan 2014)	4
10.	Assess the purpose of Union in C(June 2014)	6
11.	Illustrate bit field with an example.	3
12.	Write any four conditional directives.	1
13.	Describe the usage of register variable.	2
14.	Distinguish between local and static variables.	2
15.	What do you think about static storage class.(Dec2014)	6
16.	Compare auto and static variables.	4
17.	Define MACRO	1
18.	List some C preprocessor directives.(Jan 2016)	1
19.	Give the use of preprocessor. (May 2015)	2
20.	State the use of # define preprocessor.(Dec 2014)	1

**PART-B**

S. NO	QUESTIONS	BTL
1.	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. (16)	1
2.	(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. (10) (ii) Justify the need for structured data type. (6)	1
3.	(i) Assess the need for structure data type. Does structure bring additional overhead to a program? Justify. (10) (ii) Describe structure declaration in detail. (6)	6
4.	Illustrate a C program to create mark sheet for students using structure. (16)	3
5.	Illustrate nested structure with an example. Explain how the structure members are accessed in a nested structure with suitable example. (16)	3
6.	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 30 subjects and percentage of each student. (16)	1
7.	i) Define a Structure called date that would contain day, month, and year. Write a Program to read the details of all the structure members and display the details using pointer. (10) ii) With example program describe the usages of local and global variables (6)	1
8.	(i) Explain the various storage classes in C. (10) (ii) Explain What is union? Discuss with an example. (6)	2
9.	Explain in detail : (4 x 4 = 16) (i) # include statement (ii) # ifndef...#endif (iii) Usage of Extern variable (iv) Usage of register variable	4
10.	Explain a C program to store the employee information using structure and search a particular employee using Employee Number. (16)	4



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11.	Construct a C program using unions to prepare the employee pay roll of a company.(16)	5
12.	(i)Discuss the different forms of macro substitution in preprocessor directives.(10) (ii)Distinguish the similarities and differences between structure and Union (6)	2
13.	Explain the various Preprocessor Directives with suitable examples in detail (16)	4
14.	Explain and write a C Program to find sum and product using macros (8) Explain and write a C program to find the area of circle using Macros(8)	2