

CO-Wise AKTU Question Bank

Course: B.Tech

Subject Name: Programming For problem solving

Subject Code: BCS101

Semester:I/II

CO No.	Lect. No.	Syllabus Topic (As Per LP)	Ques. No.	Question Statement (As Per AKTU)	Session
1	1	Block diagram of digital computer & its components, operating system and its type	1.	Discuss the major components of a digital computer with suitable block diagram. Also discuss the function of each component. OR What is digital computer? Draw a block diagram of it and explain ALU and CU of it. What is the role of ALU?	2015-16,2016-17,2017-18,2018-19,2019-20,2020-21,2022-23
1	1	Block diagram of digital computer & its components, operating system and its type	2.	Draw the memory hierarchical structure of computer system.	2018-19,22-23
1	1	Block diagram of digital computer & its components, operating system and its type	3.	Differentiate between RAM and ROM.	2015-16
1	1	Block diagram of digital computer & its components, operating system and its type	4.	What are the various component of Operating System? Describe the functionalities of Operating system. OR Why operating system is required? OR Justify that operating system is a resource manager	2015-16 2018-19 2017-2018
1	1	Block diagram of digital computer & its components, operating system and its type	5.	Give difference between android and window OS.	2015-16
1	2	Introduction to low level & high level languages, role of assembler, compiler, Interpreter	6.	Difference between- (i) Low level and high level language	2015-16, 2016-17

1	2	Introduction to low level & high level languages, role of assembler, compiler, Interpreter	7.	Write the short notes on:-(i)Compiler (ii)Interpreter OR Difference between- (i) Compiler – Interpreter	2015-16, 2016-17, 2017-18, 2018-19
1	3	Representation of algorithm, flowchart, pseudo code with examples	8.	What is algorithm? Write the characteristics of an algorithm?	2019- 20,2017-18
1	3	Representation of algorithm, flowchart, pseudo code with examples	9.	Difference between- (i) pseudo code and flowchart (ii) Algorithm and flowchart	2017- 18,2015- 16,2016-17
1	3	Representation of algorithm, flowchart, pseudo code with examples	10.	Explain flow chart and benefits of using the flow chart in Programming. Draw a flowchart to find maximum of three numbers and sum and average of three numbers also.	2016- 17,2015- 16,2022-23
1	3	Representation of algorithm, flowchart, pseudo code with examples	11.	Draw an algorithm and flowchart: (i) To find the sum of digit of an integer number entered by the user. (ii) To reverse an integer number entered by the user	2018-19
1	4	Concept of programming, compilation & execution process, type of errors, concept of editor, linker & loader	12.	Differentiate between the following: (i) Linker – Loader (ii) Syntax error, Logical error and run time error OR Write the short notes on:- (I) Linker (II) Loader (III) Syntax error (IV) Logical error (V) run time error (VI) Editor	2017- 18,2018- 19,2019- 20,2015-16 2016-17
1	4	Concept of programming, compilation & execution process, type of errors, concept of editor, linker & loader	13.	While compiling the code, write the name of two syntax and two logical errors.	2018-2019
1	5	Structure of C program, component of C language (C Tokens)	14.	Explain the basic structure of C program.	2016- 17,2015-16
1	5	Structure of C program, component of C language (C Tokens)	15.	What is token in 'C' Language?	2017-18

1	5	Structure of C program, component of C language (C Tokens)	16.	How binary file differ from text file?	2015-16
1	5	Structure of C program, component of C language (C Tokens)	17.	Why do curly braces denote in C?	2015-16, 2016-17
1	5	Structure of C program, component of C language (C Tokens)	18.	Why 'C' programming is called structured programming?	2015-16
1	5	Structure of C program, component of C language (C Tokens)	19.	What is the difference between .obj and .exe files in C?	2018-2019
1	5	Structure of C program, component of C language (C Tokens)	20.	Difference between following directives? #include<stdio.h> and #include"stdio.h"	2015-16
1	6	Concept of primitive datatypes: keyword, format string, storage & range	21.	Define data types in C. Discuss primitive data types in terms of memory size, format specifier and range. OR Write the fundamental data type in C Programming and its range.	2015-16,2016-17,2020-21
1	7	Standard I/O function in sequence & Basic C programs C, escape	22.	What do you mean by formatted input/output and unformatted input/output in C language? Explain with examples	2015-2016 2017-2018
1	7	Standard I/O function in sequence & Basic C programs C, escape	23.	Write the use of putchar() and getchar().	2017-2018
1	7	Standard I/O function in sequence & Basic C programs C, escape	24.	Explain the escape sequences in C language with example.	2017-2018

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Semester: Ist

CO No.	Lect. No.	Syllabus Topic (As Per LP)	Ques. No.	Question Statement (As Per AKTU)	Session
2	8	Introduction of operators & its type based on operand, type conversion, concept of arithmetic & relational operator	1.	List all the operators used in C. Give examples. OR What is an operator? Explain the arithmetic, relational, logical, and assignment operators in C language. OR What are the different types of relation operator? Discuss each with example.	2015-16, 2017-18 2018-19 2019-20, 2020-21,
2	8	Introduction of operators & its type based on operand, type conversion, concept of arithmetic & relational operator	2	Differentiate post increment and pre increment with example.	2016-17
2	9	Concept of logical, bitwise etc operator, Operator precedence and associativity	3.	What are bitwise operators? How they are different from logical operators. find the value of following Expression using Bitwise operator- (i) $10 >> 2$ (ii) $20 << 2$ (iii) $25 \& 30$ (iv) $25 30$	2017-18, 2022-23
2	9	Concept of logical, bitwise etc operator, Operator precedence and associativity	4.	What is conditional operator? Explain with suitable example.	2018-19
2	9	Concept of logical, bitwise etc operator, Operator precedence and associativity	5.	Define The term- (I) Associativity (II) Precedence Or Differentiate between precedence and associativity.	2016-17, 2022-23
2	9	Concept of logical, bitwise etc operator, Operator precedence and associativity	6.	What is type conversion? Explain with example. OR Differentiate implicit and explicit conversion with example	2016-17 2017-18, 2022-23
2	9	Concept of logical, bitwise etc operator, Operator precedence and associativity	7.	What is difference between type casting and type conversion?	2019-20
2	9	Concept of logical, bitwise etc operator, Operator precedence and associativity	8.	Write a C program to find the largest of three numbers using ternary operator	2016-17

2	10	Concept of simple if & if else & related programs	9.	Write short note on various decision/selection control instruction used in c. OR Explain the two way selection (if, if-else, nested if-else, cascaded if else in C language with syntax.	2020-21,2015-16
2	10	Concept of simple if & if else & related programs	10.	What is the difference between else if ladder&switch statement.	2017-18
2	10	Concept of simple if & if else & related programs	11.	Write C program to check number is even or odd.	2015-16
2	10	Concept of simple if & if else & related programs	12.	Design and develop a C program to read a year as an input and find whether it is leap year or not. Also consider end of the centuries.	2015-16, 2019-20, 2017-18
2	10	Concept of simple if & if else & related programs	13.	Write a program to find whether the year is leap year or not, without using logical operator.	2016-17
2	10	Concept of simple if & if else & related programs	14.	Write a C program to find the largest of three numbers using Nested if-else statement.	2015-16
2	10	Concept of simple if & if else & related programs	15.	Write the program to print the division or grade of student for given percentage.	2016-17, 2015-16,2022-23
2	10	Concept of simple if & if else & related programs	16.	Write a program print the roots of quadratic equation for real roots & otherwise print imaginary roots.	2019-20
2	10	Concept of simple if & if else & related programs	17.	WAP to check whether the given character is upper case, lower case, numeric or symbol.	2014-15, 2017-18
2	13	Switch statements, use of break and default with switch.	18.	Explain Switch statement and its Rule with syntax.	2017-18
2	14	Programs related to conditional branching instructions for practice	19.	Write a program to find the value of y for a particular value of n. The a, x, b, n is input by user If n=1 $y=ax\%b$ if n=2 $y=ax^2+b^2$ if n=3 $y=a-bx$ if n=4 $y=a+x/b$	2014-15, 2018-19, 2020-2021
2	14	Programs related to conditional branching instructions for practice	20.	Write a program to draw the calculator using switch statement in c language.	2016-17, 2017-18

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Semester: I/II

CO No.	Lect. No.	Syllabus Topic (As Per LP)	Ques. No.	Question Statement (As Per AKTU)	Session
3	15	Use of for statement & related programs	1.	Describes about the types of looping statements in 'C' with necessary syntax. OR Write the syntax format for while, do while and for loops.	2014-15 2018-19
3	15	Use of for statement & related programs	2.	Write a program to check a number is prime number or not.	2017-18
3	15	Use of for statement & related programs	3.	Write a program in C to generate the Fibonacci series up to the last Fibonacci number less than 100. Also find the sum of all Fibonacci numbers and total count of all Fibonacci numbers	2019-20, 2014-15
3	15	Use of for statement & related programs	4.	Write a program to print all prime numbers from 1 to 300.	2015-16
3	16.	Use of while statement & related programs	5.	A number is said to be an Armstrong number if the sum of the cube of its digit is equal to the number itself. For example, 153 is an Armstrong number as $153 = 1^3 + 5^3 + 3^3$. Write a C program to check whether a given number is Armstrong or not.	2015-16, 2016-17, 2016-17
3	16.	Use of while statement & related programs	6.	Write a program to check number is palindrome or not. The program should accept any arbitrary number typed by user.	2017-18, 2019-20, 2020-21, 2016-17
3	16.	Use of while statement & related programs	7.	Write a program in 'C' that will read a positive number from the keyboard and print it in reverse order. Ex. 24578 output: 87542	2015-16 2016-17

3	16.	Use of while statement & related programs	8.	Write a program that calculate sum of the digits of an integer. For example, the sum of the digit of the number 2155 is 2+1+5+5 or 13. The program should accept any arbitrary number typed by user.	2016-17
3	17.	Concept of do while loop, break and continue	9.	Explain the do-while loop in c with its properties.	2017-18
3	17.	Concept of do while loop, break and continue	10.	Differentiate between do-while and while loop. Or Differentiate between exit control loop and entry control loop.	2015-16, 2019-20, 2020-21 2018-19, 2022-23
3	18.	Nested Loop and multiple loop variables & related programs	11.	What is the difference between break and continue in 'C'? Or How to use break statement in c? Explain with some sort of code. Or Write the syntax of continue statement. Or What is the use of break statement in loops?	2014-15, 2019-20, 2018-19, 2020-21
3	18.	Nested Loop and multiple loop variables & related programs	13	Write a C program to add first seven terms of the following series using for loop. 1/1! +2/2! +3/3! +-----	2016-17
3	18.	Nested Loop and multiple loop variables & related programs	14	Write a program to print following pattern: * * * * * * * * * *	2020-21
3	18.	Nested Loop and multiple loop variables & related programs	15	Write a program to print with following pattern: 10 9 8 7 6 5 4 3 2 1	2018-19

3	19.	Array notation and representation, one dimensional arrays & related programs	16	What is array? In which situation array is advantageous over linked list? or What is an array? Give an example.	2018-19, 2016-17
3	19.	Array notation and representation, one dimensional arrays & related programs	17	What are subscripts? How they are specified?	2017-18
3	19.	Array notation and representation, one dimensional arrays & related programs	18.	Write a program to find odd and even number from the array elements and its count.	2020-21
3	19.	Array notation and representation, one dimensional arrays & related programs	19.	Write a C program to check whether given square matrix is symmetric or not.	2015-16
3	20	Using multi dimensional arrays & related programs	20	Write a C program to multiply two matrices. Take the size of elements of matrices from the keyboard. Or Write a program to multiply the 2 matrices of size M*N. Or Write a program to multiply two matrices of dimension 3*3 and store the result in another matrix. Or Write a C program to multiply two matrices and display the resultant matrix Or Write a program to multiply two matrices (read size and number of elements of matrices from the keyboard..	2015-16, 2016-17, 2017-18, 2018-19, 2020-21, 2022-23
3	20	Using multi dimensional arrays & related programs	21.	Write a program in C for matrix addition. Or Write a program to add two matrices of dimension 3*3 and store the result in another matrix.	2016-17, 2017-18
3	20	Using multi dimensional arrays & related programs	22.	Write a program in C to find the largest number of a 4*4 matrix.	2017-18
3	21.	Character arrays and strings, string handling library functions	23.	What is a String?	2015-16

3	21.	Character arrays and strings, string handling library functions	24.	Explain the significance of null character in string.	2018-19
3	21.	Character arrays and strings, string handling library functions	25.	Explain all string handling library functions. Or Explain predefined string functions. Or Explain in brief the purpose of 'strcmp' function.	2015-16
3	22	Programs related to string for practice	26.	Write a program in C to reverse a string by using pointer.	2017-18
3	23	Concept of structure, array of structure & related programs	27	Describe structure. Differentiate between structure and array. Define structure data type called timestructure containing three members integer hour, integer minute and integer second. Write a program in C that would assign values to the individual members and display the time in the following form: 16:40:52 Or Explain struct with suitable example. Or Define a structure? Or Explain with example, the syntax and usage of the structure in C. Or Define structure with syntax.	2015-16, 2016-17, 2017-18
3	23	Concept of structure, array of structure & related programs	28.	Describe the relation between structures and pointer.	2015-16
3	23	Concept of structure, array of structure & related programs	29.	Write a program in C to create a data base of fifty students to store personal details such as roll no, name and marks .Print all the details of students whose name is entered by the user.	2016-17, 2017-18
3	23	Concept of structure, array of structure & related programs	30.	Write a C program to store the employee information using structure and search a particular employee using employee number. Take the structure EMPL and its member employee No, employee Name, employee edu.	2015-16, 2016-17

				Or Write a 'C' program to store the employee details using structure.	
3	23	Concept of structure, array of structure & related programs	31.	Write a program that compares two given dates. To store data use structure say date that contains three members namely date, month and year. If the dates are equal then display message as "Equal" otherwise "Unequal"	2017-18
3	23	Concept of structure, array of structure & related programs	32.	Create a suitable structure in C language for keeping the records of the employees of an organization about their code , Name , Designation , salary , Department , City of posting. Also Write a program in C to enter the records of 100 employees and displays the name of those who earn more than 20,000	2019-20
3	23	Concept of structure, array of structure & related programs	33	Explain the importance of structure in C programming. Write a program in C using Structure to enter and print the record of 10 books available in your library. Following fields may be included in the record: book_title ,book_price and number_of_pages.	2018-19
3	23	Concept of structure, array of structure & related programs	34	Explain array of structures.	2016-17
3	24.	Difference between structure & union, enumerated data types	35	Differentiate between structure and union in 'C'.	2015-16 2018-19,2022-23
3	24.	Difference between structure & union, enumerated data types	36.	Write short notes on Union and Enumerated data type. Or Explain the following: i)Enumerated Data Type ii)Union	2016-17, 2018-19

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Semester: I/II

CO No.	Lect. No.	Syllabus Topic (As Per LP)	Ques. No.	Question Statement (As Per AKTU)	Session
4	25	Introduction to function and types of functions	1.	What are functions? What is the advantage of using multiple functions in a program? Or What is function? Why programmer use functions in code?	2016-17
4	25	Introduction to function and types of functions	2.	What are the types of function?	2014-15
4	25	Introduction to function and types of functions	3.	What is the need of function?	2015-16
4	25	Introduction to function and types of functions	4.	What is the meaning of prototype of a function?	2015-16, 2019-20, 2017-18
4	25	Introduction to function and types of functions	5.	Explain function declaration and definition of a function with example.	2017-18
4	25	Introduction to function and types of functions	6.	Differentiate between actual and formal arguments.	2016-17, 2017-18, 2014-15
4	25	Introduction to function and types of functions	7.	Distinguish between – int main () and void main ()?	2016-17
4	25	Introduction to function and types of functions	8.	Write a function in C language to find the reverse of a given integer number.	2015-16
4	26	Difference between call by value and call by reference	9.	What do you mean by parameter passing? Discuss various types of parameter passing mechanism in C with example? Or Explain the difference between parameter passing mechanism	2016-17, 2015- 16,2017- 18,2022-23

				call by value and call by reference. Which is more efficient and why? Or Write a function to interchange the two values of two variables without using third variable.	
4	27	Concept of storage class	10.	What is storage class? Describe automatic, register, static and external with neat syntax.	2014-15, 2017-18, 2015-16
4	27	Concept of storage class	11.	Discuss the following: (i) Scope of variable (ii) Lifetime of a variable	2015-16 2018-19
4	28	Role of recursive functions & related programs	12.	Differentiate between static and register storage class in C language.	2016-17
4	28	Role of recursive functions & related programs	13.	What is recursion? Write a C program to generate the Fibonacci Series.	2016-17, 2017-18, 2016-17, 2017-18
4	28	Role of recursive functions & related programs	14.	What are the main principles of recursion? Explain in detail.	2014- 15(Even), 2015-16
4	28	Role of recursive functions & related programs	15.	Differentiate between recursion and iteration.	2018-19
4	28	Role of recursive functions & related programs	16.	Write a C program to find the factorial of a given number using recursion.	2014-15, 2018-19, 2020- 2021,2022- 23
4	29	Searching : linear search & binary search	18.	Write a C program to search a number in given 10 numbers using linear search technique?	2016-17
4	29	Searching : linear search & binary search	19.	Write a C program to search a number in given 10 numbers using binary search technique.	2017-18

4	29	Searching : linear search & binary search	20.	Explain linear search and binary search technique for searching and item in a given array .Also write the complexity for each sorting algorithm.	2018-19
4	29	Searching : linear search & binary search	21.	Differentiate between linear search and binary search.	2018-19,2022-23
4	30	Basic sorting algorithms : bubble Sort	22.	What do you mean by sorting? Write program to sort the given n positive integers. Also give the flowchart for the same. Or Write a program in C for sorting N positive integers in Ascending order. Or Define sorting algorithm with example.	2016-17,2017-18
4	30	Basic sorting algorithms : bubble Sort	23.	What do you mean by sorting? Write a program in C to sort 'n' positive integers using bubble sort. Also draw the flow chart for the same. Or Write the importance of sorting in problem solving .Write a program in C using bubble sort technique to sort 10 numbers entered by the user. Or Write a C program to sort set of integers in ascending order by using bubble sort technique.	2017-18,2018-19,2019-20,2022-23
4	31	Other sorting algorithms : selection & insertion sort	24.	Explain selection sort technique for sorting problem. Write an algorithm for selection sort. Sort the following numbers using selection sort technique 26, 54, 93, 17, 77, 31, 44, 55, 20. Or Explain Selection sort with example.	18-19 ,2020-21
4	31	Other sorting algorithms : selection & insertion sort	25.	Write a C program to sort set of integers in ascending order by using selection sort technique.	2022-23

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Semester:1st

CO No.	Lect. No.	Syllabus Topic (As Per LP)	Ques. No.	Question Statement (As Per AKTU)	Session
5	33	Introduction, declaration, applications of pointer	1.	What is pointer and how is it initialized?	2015-16 2016-17, 2017-18
5	33	Introduction, declaration, applications of pointer	2.	What is void pointer? How is it different from other pointers? Or What is special about void pointer?	2015-16
5	33	Introduction, declaration, applications of pointer	3.	What do you mean by pointer arithmetic?	2019- 20,2022-23
5	33	Introduction, declaration, applications of pointer	4.	State the features of pointers.	2015-16, 2016- 17,2019-20
5	34	Introduction to dynamic memory allocation:- malloc, calloc, realloc and free	5.	What is dynamic memory allocation? How does it help in building complex programs? What is the task of following memory allocation function? a. malloc b. calloc c. free d. realloc or What is the role of dynamic memory allocation?	2015- 16,2016- 17,2017- 18,2018- 19,2019- 20,2020- 21,2022-23
5	34	Introduction to dynamic memory allocation:- malloc, calloc, realloc and free	6.	What is life time of variable which is created dynamically?	2018-19
5	34	Introduction to dynamic memory allocation:- malloc, calloc, realloc and free	7.	Difference between compile time and run time memory allocation. Or Explain static memory allocation and dynamic memory allocation with suitable example.	2018- 19,2022-23

5	35	Program related to pointers & dynamic memory allocation	8.	Write a program in c to sort the numbers using pointers.	2019-20
5	36	Linked List: Use of pointers in self-referential structures. notion of linked list (no implementation)	9.	What is linked list? Write the self reference structure of a node in linked list?	2018-19,2022-23
5	36	Linked List: Use of pointers in self-referential structures. notion of linked list (no implementation)	10.	Write the advantage of use of linked list.	2020-21
5	37	Introduction to file, file handling library functions	11.	Explain file handling.	2020-21
5	37	Introduction to file, file handling library functions	12.	Write the following function in file operations: getw() putw() fscanf() fprintf()	2017-18,2020-21
5	38	Practice of file related programs	13.	What are the various types of files that can be created in C language? Also give different modes in which these files can be used with proper syntax. WAP in c to append some text at the end of an existed text file.	2015-16,2017-18,2019-20,2021-22,2022-23
5	38	Practice of file related programs	14.	List various file operation in C .WAP in c to count the number of characters in a file.	2015-16,2017-18,2018-19,2022-23
5	38	Practice of file related programs	15.	Write the various input functions used in file handling in c. A file named data contains a series of integer numbers WAP to read number from file and then write all 'odd' number to file ODD.txt & all even to file EVEN.txt.	2015-16,2019-20
5	38	Practice of file related programs	16	Suppose a file contains student's records with each record containing name and age of a student. WAP in C to read these records and display them in sorted order by name.	2015-16
5	38	Practice of file related programs	17	Write a c program to copy the text of one file to another.	2015-16,2016-17,2017-18,2020-21

5	38	Practice of file related programs	18.	Write a program in c to write some text matter into a file 'example.txt" and then read this text matter and display on console using file handling method.	2022-23
5	39	Standard C preprocessors, types of preprocessor directives	19.	What is preprocessor directive? Explain any three of them. Or What is the role of C preprocessor?	2015-16,2019-20,2020-21,2022-23
5	39	Standard C preprocessors, types of preprocessor directives	20	What do you mean by macro? Explain types of macros with examples. Or How the macros are defined and called in c. explain with suitable example.	2016-17,2017-18,2018-19
5	39	Standard C preprocessors, types of preprocessor directives	21	Write the difference between #includes<stdio.h>& #include"stdio.h" file inclusion method.	2015-16
5	39	Standard C preprocessors, types of preprocessor directives	22.	#define PRODUCT(n) n*n void main() { int j; j=64/PRODUCT(4); printf("%d",j); } What will be the output of the above program?	2017-18
5	39	Standard C preprocessors, types of preprocessor directives	23.	Explain the syntax and use of the following directive with example: #ifdef #undef #pragma #include	2017-18,2018-19
5	39	Standard C preprocessors, types of preprocessor directives	24.	Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'. Include this file in your program and use macro definitions for calculation simple interest and amount.	2019-20
5	40	Command-line arguments & related programs	25.	Explain command line argument in c with example.	2018-19