



Jyothy Charitable Trust®

Jyothy Institute of Technology

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Approved by The All India Council for Technical Education (AICTE) - New Delhi;

Affiliated to Visvesvaraya Technological University (VTU), Belagavi;

Department of Computer Science & Engineering

Accredited by National Board of Accreditation (NBA) -New Delhi.

EXHAUSTIVE QUESTION BANK

Batch	2022 - 2026		
Year/Semester/Section	2nd/3rd/B		
Course Code -Title	BCS304 – Data Structures and Applications		
Module No. -Title	I – Introduction to Data Structures		
Name of the Course In charge	Mrs. Prathibha KN	Designation	Asst. Prof.

QNo.	Question	COs	RBT
1	Define Data Structures. List and explain the different operations that can be performed on arrays.	CO1	L1
2	Define strings. List and explain five operations that can be performed on strings with example.	CO1	L1
3	List and describe the functions supported in C for dynamic memory allocation.	CO1	L1
4	Define pointers. List the advantages of pointers over array.	CO1	L1
5	Discuss the types of structures with appropriate examples.	CO1	L2
6	Differentiate the following a) Structure and Array b) Structure and Union.	CO1	L2
7	Define sparse matrix. Express the following matrix in triplet form and find its transpose. 15 0 0 22 0 11 3 0 0 0 0 -6 0 0 0 0 91 0 0 0 0 0 28 0	CO1	L2
8	Illustrate the KMP pattern matching algorithm and discuss the same to search the pattern “abcdabcy” in the text “abcxabcdabxabcdabcy”.	CO1	L2
9	Outline KMP algorithm and employ the same to find out the occurrence of the following pattern: P: ABCDABD S: ABC ABCDAB ABCDABCDABDE	CO1	L3

10	What is a polynomial? Design an algorithm to add two polynomials using ADT Polynomial($c = a + b$)	CO1	L3
11	Define stack. Explain the different operations that can be performed on stack with suitable C functions and examples.	CO1	L3
12	Convert the following infix expression to postfix expression using stack. $(A + (B * C - (D / E ^ F) * G) * H$	CO1	L3
13	Outline the algorithm for infix to postfix and apply the same to convert following infix expression to postfix expression. $((H * (((A + ((B + C) * D)) * F) * G) * E)) + J$	CO1	L4
14	How to declare and initialize pointers? Explain with an example.	CO1	L4
15	Illustrate the representation of 2-D arrays in memory with suitable example.	CO1	L4
16.	Implement Stack using Dynamic memory Allocation .	CO1	L3
17.	Evaluate the following postfix expression by showing the contents of the stack $5\ 4\ 6\ +\ *\ 4\ 9\ 3\ /\ +$	C01	L2

Course In charge

DAEC

HOD