SRI KRISHNA INSTITUTE OF TECHNOLOGY

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#29, Chimney Hills, Hesaraghatta Main Road, Chikkabanavara Post, Bengaluru- 560090

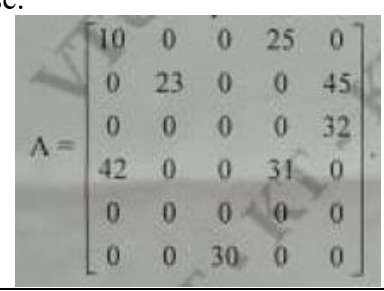
Department of Artificial Intelligence and Machine Learning

Subject Name: Data Structures and Applications **Subject Code: BCS304**

SEM: 3rd **DIV: A**

Faculty: Prof. Manzoor Ahmed

Module-1 Question Bank

SL#	Question	CO	Level	Marks
1.	What is Data Structures? What are the various types of data structure? Explain.	CO1	L1	8
2.	What is Structure? How it is different from array? Explain different types of structure declaration with examples and give difference between Union and Structure.	CO1	L2	8
3.	Define pointers. How to declare and initialize pointers, explain with example.	CO1	L1	6
4.	Explain dynamic memory allocation functions in detail.	CO1	L1	10
5.	Write the Knuth Morris Pratt pattern matching algorithm and apply the same to search the pattern 'abcdabcy' in the text: 'abcxabcdabxabcdabcdabcy'	CO1	L2	10
6.	Write a C program to: i) Comparing strings ii) Concatenate two strings iii) Length of the string without using built-in funations.	CO1	L2	8
7.	Define data structures. List and explain the different operations that can be carried on arrays.	CO1	L1	6
8.	Define pointers. List the advantages of pointers over arrays.	CO1	L2	6
9.	Define dynamic memory allocation. List and write with explanation the syntax of dynamic memory allocating functions.	CO1	L2	10
10.	Define strings. List and explain any 5 operations with example.	CO1	L1	8
11.	Write drawback of static memory allocation. Explain in detail the different functions of dynamic memory allocation.	CO1	L1	8
12.	Write a program to search for an element in the sparse matrix	CO1	L2	8
13.	Write the Fast Transpose algorithm to transpose the given Sparse Matrix. Express the given Sparse Matrix as triplets and find its transpose. 	CO1	L2	10

SL#	Question	CO	Level	Marks
14.	What is stack? Write a program to implement push, pop and display operations for stacks using arrays and show them using diagrammatic representations	**CO2**	**L2**	**8**
15.	Convert the following infix expression to post expression: ((A+(B-C)*D^E+F) ii) XYZ-M+N+P/Q iii) A$B*C-D+E\|F\|(G+H) iv) A-B\|(C*D$E	**CO2**	**L2**	**6**
16.	Write a program to evaluate the postfix expression.	**CO2**	**L2**	**6**
17.	Write an algorithm to convert a parenthesized infix expression to postfix. Apply the algorithm and show the contents of stack during conversion for the expression: (A+B*C) * ((D+E-F)/J).	**CO2**	**L2**	**8**
18.	Write an algorithm to evaluate a postfix expression and apply the same for the given postfix expression. ABC –D*+E$F+ and assume A=6, B=3, C=2, D=5, E=1 and F=7	**CO2**	**L2**	**8**

Faculty Signature