PVP 20

Code: 20CS5501

III B.Tech - I Semester – Regular Examinations - DECEMBER 2022

COMPUTATIONAL THINKING
(MINORS in COMPUTER SCIENCE & ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
		UNIT-I			
1	a)	Discuss the four pillars of computational thinking in detail.	L2	CO1	6 M
	b)	Develop an algorithm to find the roots of a quadratic equation considering all cases.	L3	CO2	8 M
		OR			
2	a)	Define algorithm. Explain algorithm for swapping of two numbers.	L2	CO1	8 M
	b)	Develop an algorithm to compute factorial of a given integer.	L3	CO2	6 M
		UNIT-II			
3	a)	Discuss algorithm to generate prime number series between m and n, where m and n are integers.	L2	CO2	7 M
	b)	Construct an algorithm and flowchart to compute prime factors of an integer of your	L3	CO2	7 M

		choice.			
OR					
4	a)	Construct an algorithm for finding smallest divisor of an integer.	L3	CO2	6 M
	b)	Develop an algorithm and draw flowchart for finding the square root of a number.	L3	CO2	8 M
UNIT-III					
5	a)	Develop an algorithm for finding the maximum number of array elements.	L3	CO3	7 M
	b)	Define array. Explain an algorithm for array order reversal that starts out with two indices, i=0 and j=n+1.With each iteration i is increased and j is decreased for i<j.	L2	CO1	7 M
OR					
6	a)	Develop an algorithm to find the biggest number and smallest number of given ‘n’ numbers using arrays.	L3	CO3	8 M
	b)	Distinguish between all loop statements along with a flowchart.	L2	CO3	6 M
UNIT-IV					
7	a)	What do you mean by sorting? Summarize the different types of sorting.	L2	CO3	8 M
	b)	Describe insertion sort with an example.	L2	CO3	6 M
OR					
8	a)	Analyze insertion sort algorithm and trace the steps of insertion sort for sorting the list [12, 19, 33, 26, 29, 35, 22, 37] find the total	L4	CO4	8 M

		no. of comparisons made.			
	b)	Discuss exchange sort algorithm with suitable example.	L2	CO1	6 M
UNIT-V					
9	a)	Explain different types of text processing and pattern searching algorithms.	L2	CO1	8 M
	b)	Explain with an example i) Sublinear pattern search ii) Linear pattern search	L2	CO1	6 M
OR					
10	a)	Develop an algorithm for finding the "keyword" in given text.	L3	CO3	8 M
	b)	Explain the difference between text processing and pattern searching algorithms with the help of examples.	L2	CO1	6 M