Subject Name:- DAA(BCS-403)   (B.E-SEM-IV)

BRANCH- C.S.E   SESSION: 2021-2022

MAX. MARKS-15   TIME- 1:00 HOUR

Note:- Attempt All Questions

Q. No.	SECTION-A (1×5 =5)	CO	BLOOM TAXONOMY LEVEL
Q.1	Consider the recurrence relation $a_1=4$, $a_n=5n+a_{n-1}$. The value of a_{64} is a)10399 b)23760 c)75100 d)53700	CO1	K4
Q.2.	What is the recurrence relation for 1, 7, 31, 127, 499? a) $b_n=5b_{n-1}+3$ b) $b_n=4b_n+7!$ c) $b_n=4b_{n-1}+3$ d) $b_n=b_{n-1}+1$	CO1	K2
Q.3.	If $S_n=4S_{n-1}+12n$, where $S_0=6$ and $S_1=7$, find the solution for the recurrence relation. a) $an=7(2n)-29/6n6n$ b) $an=6(6n)+6/7n6n$ c) $an=6(3n+1)-5n$ d) $an=nn-2/6n6n$	CO1	K2
Q.4.	What is the speciality about the inorder traversal of a binary search tree? a) It traverses in a non increasing order b) It traverses in an increasing order c) It traverses in a random fashion d) It traverses based on priority of the node	CO2	K1
Q.5.	In heap sort, after deleting the last minimum element, the array will contain elements in? a) increasing sorting order b) decreasing sorting order c) tree inorder d) tree preorder	CO2	K1
	SECTION-B (2.5×2=5)		
Q.1.	Consider the following recurrence relation: $$T(n)=\{T(n/2)+T(2n/5)+7n \quad \text{if } n>0$$ $$1 \qquad\qquad \text{if } n=0$$ Solve using recursive by tree method..	CO1	K3
Q.2.	Consider the following binary search tree T given below. Which node contains the fourth smallest element in T? Explain the reason also......	CO1	K4
	SECTION-C (5*1=5)		
Q.1	Write algorithm to sorting a list of integer using heap-sort. Derive the expression for time complexity of heap sort.	CO2	K5