Semester: V   **Session:** 2023-24
Course Code: KCS503   **Roll No.:**
Course Name: DAA   **Time: 1.Hrs.**
Maximum Marks: 20
Instructions:
1.   **Attempt Allsections.**
2.   **If require any missing data, then choose suitably.**

Q. No.	Question	Marks	CO	KL	PI
	Section-A **Total Marks : 20**				
1	**Attempt ALL part from the following**	*Same K Levels Questions*			
a)	Explain how algorithms performance is analyzed?	2	CO1		
b)	Solve the recurrence using master's theorem. $T(n) = 4T(n/2) + n^2$	2	CO1		
2	**Attempt ALL part from the following**	*Same K Levels Questions*			
a)	Write an algorithm for insertion sort. Discuss best case time complexity of insertion sort and prove it.	3	CO1		
b)	Illustrate the operation of counting sort on the following array: **A= {2,5,3,0,2,3,0,3}**	3	CO1		
3	**Attempt ALL part from the following**	*Same K Levels Questions*			
a)	Solve the given recurrence relation using recursion tree method. **$T(n) = 3T(n/4) + cn^2$**	5	CO1		
b)	Write Merge Sort Algorithm. And sort the following sequence {12, 31, 25, 8, 32, 17, 40, 42} using merge sort.	5	CO1		

CO   Course Outcomes mapped with respective question
KL   Bloom's knowledge Level (K1, K2, K3, K4, K5, K6)
      K1-Remember,K2-Understand,K3-Apply,K4-Analyze,K5:Evaluate,K6-Create