CMR
INSTITUTE OF
TECHNOLOGY

USN | 1 | C | | | | | | | | |

Internal Assessment Test 1 – September 2019

Sub:	Design and Analysis of Algorithms							Code:	18MCA33
Date:	07-09-18	Duration:	90 mins	Max Marks:	50	Sem:	III	Branch:	MCA

Note: Answer any full 5 questions. All questions carry equal marks. Total marks: 50

	Marks	OBE CO	OBE RBT
Part-I			
1. What is an algorithm? What are the characteristics of a good algorithm? Explain with example of GCD of two numbers.	10	CO1	L1
(OR)			
2. Explain the fundamental data structures used for designing algorithms	10	CO1	L1
Part-II			
3. Describe the various asymptotic notations with a neat diagrams and examples. Describe various Basis Efficiency classes .	10	CO2 CO3	L2
(OR)			
4. Write the algorithm for the Tower of Hanoi problem. Explain the solution with 3 disks. Solve the recurrence relation M(n) = 2 M(n-1)+1 for all n > 1 , M(1)=1.	10	CO2 CO3	L2 L3

USN | 1 | C | | | | | | | | |

CMR
INSTITUTE OF
TECHNOLOGY

Internal Assessment Test 1 – September 2019

Sub:	Design and Analysis of Algorithms							Code:	18MCA33
Date:	07-09-18	Duration:	90 mins	Max Marks:	50	Sem:	III	Branch:	MCA

Note: Answer any full 5 questions. All questions carry equal marks. Total marks: 50

	Marks	OBE CO	OBE RBT
Part-I			
1. What is an algorithm? What are the characteristics of a good algorithm? Explain with example of GCD of two numbers.	10	CO1	L1
(OR)			
2. Explain the fundamental data structures used for designing algorithms	10	CO1	L1
Part-II			
3. Describe the various asymptotic notations with a neat diagrams and examples. Describe various Basis Efficiency classes .	10	CO2 CO3	L2
(OR)			
4. Write the algorithm for the Tower of Hanoi problem. Explain the solution with 3 disks. Solve the recurrence relation M(n) = 2 M(n-1)+1 for all n > 1 , M(1)=1.	10	CO2 CO3	L2 L3

Part-III

5	Explain the methods to analyze recursive and non-recursive algorithms with examples.	10	CO2 CO3	L2
	(OR)			
6.	Write the recursive algorithm and analysis of the problem to count the number of digits in the binary representation of a decimal number.	10	CO2 CO3	L3
	Part-IV			
7	. Write the algorithm and analysis of the element uniqueness problems. Explain with an example	10	CO4	L2
	(OR)			
8	. Explain the various stages of the algorithm design and analysis process with the help of a flowchart.	10	CO1	L2 L3
	Part-V			
9	Write an algorithm for Bubble sort . Explain with an example and derive the time complexity	10	CO2 CO4	L2 L3
	(OR)			
10	Write an algorithm for Selection sort and Explain with an example and derive the time complexity	10	CO4	L2

Part-III

5	Explain the methods to analyze recursive and non-recursive algorithms with examples.	10	CO2 CO3	L2
	(OR)			
6.	Write the recursive algorithm and analysis of the problem to count the number of digits in the binary represention of a decimal number.	10	CO2 CO3	L3
	Part-IV			
7	. Write the algorithm and analysis of the element uniqueness problems. Explain with an example	10	CO4	L2
	(OR)			
8	. Explain the various stages of the algorithm design and analysis process with the help of a flowchart.	10	CO1	L2 L3
	Part-V			
9	Write an algorithm for Bubble sort . Explain with an example and derive the time complexity	10	CO2 CO4	L2 L3
	(OR)			
10	Write an algorithm for Selection sort and Explain with an example and derive the time complexity	10	CO4	L2