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| Reg. No.: | |  | |
|  | CHENNAI INSTITUTE OF TECHNOLOGY  Sarathy Nagar, Pudupedu, Chennai - 600 069. Internal Assessment-1 April 2022 | | |
| Date /Time | 1/4/2022 | Max. Marks | 50 Marks |
| Subject with Code | CS 80000451-Design and Analysis of Algorithms | Time | 1.30 Hours |
| Branch | CSE/IT/CSBS - SET A | Year/Semester | II/IV |

Course Objectives  
The Student should be able

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| Sl.no | Course Objectives |
| 1 | To understand the basics of algorithmic notion |
| 2 | To understand and apply the algorithm analysis techniques. |
| 3 | To critically analyze the efficiency of alternative algorithmic solutions for the same problem |
| 4 | To understand different algorithm design techniques. |
| 5 | To understand the limitations of Algorithmic power. |
| 6 | To understand the basics of algorithmic notion |
| 7 | To understand and apply the algorithm analysis techniques. |
| 8 | To critically analyze the efficiency of alternative algorithmic solutions for the same problem |
| 9 | To understand different algorithm design techniques. |
| 10 | To understand the limitations of Algorithmic power. |

Course Outcomes:  
On Completion of the course the students will be able

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| CO No. | Course Outcomes |
| C213.1 | To analyze the time and space complexities of a given problem using suitable mathematical techniques |
| C213.2 | To design efficient algorithms for a given problem using appropriate algorithmic paradigm |
| C213.3 | The student will be able to critically analyze different algorithm design techniques for the same problem using dynamic programming and greedy technique |
| C213.4 | The student will be able to improvise the solutions for a given problem using Iterative Improvement |
| C213.5 | The student will be familiarized with the limitations of algorithmic solutions to various problems. |

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| BLOOMS TAXONOMY(BT) K1-Remembering , K2-Understanding, K3-Applying, K4-Analyzing, K5-Evaluating ,K6-Creating N/D-November/December A/M-April/June |

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| Part A-(5x2=10 marks)  (Answer all the questions) | CO | BT level | Univ Qp   reference |

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| 1 | Write the charcteristics CIT Logo Simple - an algoritm. logo1.png | C213.1 | K1 | C213.1 |
| 2 | How to measure algorithm running time? | C213.2 | K2 | C213.2 |
| 3 | Write the non-recursive algorithm to find the largest element in the list of numbers. | C213.3 | K3 | C213.3 |
| 4 | What is mean by Algorithm Visualization? | C213.4 | K4 | C213.4 |
| 5 | Define recurrance relation. | C213.5 | K5 | C213.5 |

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| Part B (2\*12=24 marks)  (Answer all the questions) | CO | BT level | Univ Qp   reference | Marks Alloted |

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| 6(a)(i) | Write the charcteristics CIT Logo Simple - an algoritm. logo1.png | C213.1 | K1 | C213.1 | C213.1 |

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| 6(b)(i) | Write the charcteristics CIT Logo Simple - an algoritm. logo1.png | C213.1 | K1 | C213.1 | 10 |
| 6(b)(ii) | Write the charcteristics CIT Logo Simple - an algoritm. logo1.png | C213.2 | K2 | C213.2 | 2 |

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| 7(a)(i) | Explain Asymptomatic Notations | C213.1 | K1 | C213.1 | 12 |

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| 7(b)(i) | Illustrate mathematical Analysis on recursive Algorithms | C213.1 | K1 | C213.1 | 12 |

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| Part C (1\*16=16 marks) | CO | BT level | Univ Qp   reference | Marks Alloted |

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| 8.a(i) | Write the Asymptomatic notationsused for worst-case,best-case and the average case analysis of algorithms. Write an algorithm for sequential search. Give worst-case, best-case and average case complexities. | C213.1 | K1 | C213.1 | 16 |

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| 8.b(i) | Write the charcteristics of an algoritm. | C213.1 | K1 | C213.1 | 16 |

Prepared by Verified by Approved by