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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF COMPUTER SCIENCE & ENGINEERING

Makeup EXAMINATION - July 2024

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| **Semester : 6** | **Date : 10/07/2024** |
| **Course Code : CSE2052** | **Time : 9.30 AM to 12.30 Noon** |
| **Course Name : Distributed Systems** | **Max Marks : 100** |
| **Program : BTech** | **Weightage : 50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 2M=10M** | | | |
| 1 | List the characteristics of distributed system? | (CO 1) | [L1] |
|  | | | |
| 2 | Define inter process communication. | (CO1) | [L1] |
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| 3 | List out the key elements of Distributed Systems. | (CO1) | [L1] |
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| 4 | Define distributed systems. What are the significant issues and challenges of the distributed systems? | (CO2) | [L1] |
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| 5 | What is the Goal of Load Balancing Algorithms? | (CO2) | [L2] |
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| 6 | What is naming and locating facility? | (CO3) | [L2] |
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| 7 | What is Scalability? | (CO4) | [L2] |
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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 8 | What are the different types of failures and how are they dealt in distributed systems? | (CO4) | [L2] |
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| 9 | Explain distributed shared memory. | (CO1) | [L2] |
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| 10 | Explain evolution steps involved in Distributed Systems timeline. | (CO2) | [L2] |
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| 11 | Explain evolution steps involved in Distributed Systems timeline. | (CO3) | [L2] |
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| 12 | Why is computer clock synchronization necessary? | (CO4) | [L2] |
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| 13 | Discuss how Logical time and logical clock are related. | (CO4) | [L2] |
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| 14 | Justify Bully election algorithm along with illustrated diagrams. | (CO3) | [L2] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 20M=40M** | | | |
| 14 | Elaborate about following load balancing approaches and its subtypes:   * 1. Static load balancing   2. Dynamic load balancing | (CO1) | [L2] |
|  | | | |
| 15 | Find an optimal task assignment with an example problem and calculate following tables:   * 1. intertask communication cost   2. execution cost | (CO2) | [L2] |
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| 16 | A distributed operating system makes a collection of networked machines to act like a virtual uniprocessor. What are the main advantages of this virtual-machine architecture for a user? What issues are important for a distributed operating system designer in achieving this goal? | (CO4) | [L2] |
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