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**Presidency University**

**Bengaluru**

**School Of Computer Science and Engineering & Information Science**

**Summer term End-Term Examinations, August 2024**

**Date**: 05.08.2024

**Time**: 01.00PM – 04.00 PM

**Max Marks**: 100

**Weightage**: 50%

**Odd Semester**: 2023 - 24

**Course Code**: CSE2032

**Course Name**: Introduction to FoG Computing

**Department: CSE**

**Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *Do not write any matter on the question paper other than roll number.*

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| **Q.No** | **Questions** | |  | **Marks** | **CO** | **RBT** |
| 1 | 1. Explore and elaborate on the key characteristics that define Fog Computing. | |  | 4 | CO1 | L1 |
| 1. Discuss the critical issues arising from resource constraints in Fog Nodes | |  | 6 | CO1 | L2 |
| 1. Distinguish between Cloud Computing, Edge Computing, and Fog Computing, highlighting the key characteristics and distinctions of each paradigm. | |  | 10 | CO1 | L3 |
|  | | OR | | | | |
| 2 | 1. How does data privacy in fog computing compare to cloud computing? | |  | 4 | CO1 | L1 |
| 1. Explain the need for fog computing in IoT, addressing specific challenges it solves more effectively than cloud computing with examples. | |  | 6 | CO1 | L2 |
| 1. Analyze the potential for using fog computing and edge computing together, providing examples of complementary use cases. | |  | 10 | CO1 | L3 |

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| 3 | 1. Write short notes on Fog architecture for Smart Cities | 4 | CO2 | L1 |
| 1. Discuss how short-range technologies within WPANs contribute to the Internet of Things (IoT) ecosystem | 6 | CO2 | L2 |
| 1. Provide a comprehensive explanation of the architecture of the IEEE 802.11 standard, supported by suitable diagrams | 10 | CO2 | L3 |

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| 4 | 1. Write short notes on Long Range Technologies | 4 | CO2 | L1 |
| 1. Explain the fog computing architecture used in healthcare, discussing its components, data flow, and benefits to medical applications. | 6 | CO2 | L2 |
| 1. Explain how 4G and 5G standards enhance fog computing capabilities, particularly in terms of latency, bandwidth, and connectivity. | 10 | CO2 | L3 |

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| 5 | 1. Explain how Software-Defined Clouds facilitate real-time analytics applications | 4 | CO3 | L1 |
| 1. Explain the fog computing architecture used in healthcare, discussing its components, data flow, and benefits to medical applications. | 6 | CO3 | L2 |
| 1. Explain how 4G and 5G standards enhance fog computing capabilities, particularly in terms of latency, bandwidth, and connectivity. | 10 | CO3 | L3 |

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| 6 | 1. Write short notes on the need of middleware in fog and edge computing. | 4 | CO3 | L1 |
| 1. Explain the process and considerations involved in forming clusters within lightweight edge clouds. | 6 | CO3 | L2 |
| 1. Provide a comprehensive explanation regarding the necessity of middleware in Fog and Edge Computing. | 10 | CO3 | L3 |

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| 7 | 1. Explain the Basic components of IoT Applications and their uses with an example | 4 | CO4 | L1 |
| 1. Explain how fog computing facilitates real-time data processing for big data analytics. | 6 | CO4 | L2 |
| 1. Describe Intelligent Traffic Lights Management (ITLM) System in detail | 10 | CO4 | L3 |

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| 8 | 1. How can data encryption be effectively implemented in edge cloud environments? | 4 | CO4 | L1 |
| 1. How does fog computing address the latency issues present in cloud computing? | 6 | CO4 | L2 |
| 1. Describe Fog-IoT: architectural model in detail with necessary diagram | 10 | CO4 | L3 |

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| 9 | 1. Write short notes on applications of Fog Computing | 4 | CO1 |  | L1 |
| 1. List down the roles of edge devices in a Fog Computing setup | 6 | CO1 |  | L2 |
| 1. Classify Mobile Fog Computing Models. Explain the Use cases for each model | 10 | CO1 |  | L3 |

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| 10 | 1. Write short notes on Fog Computing Columniation Technologies | 4 | CO2 |  | L1 |
| 1. Describe 5G Protocol Stack with neat diagram | 6 | CO2 |  | L2 |
| 1. How does power consumption vary between Bluetooth, Zigbee, and Z-Wave, and why is this an important factor in choosing a protocol for specific IoT applications? | 10 | CO2 |  | L3 |