VIT
Vellore Institute of Technology
CHENNAI

Reg. Number:	

Continuous Assessment Test (CAT) – II - April 2024

Programme	:	B.Tech.(CSE)	Semester	:	Winter 23-24
Course Code & Course Title	:	BCSE313L & Fundamentals of Fog and Edge Computing	Class Number	:	CH2023240501885, CH2023240501889
Faculty	:	Dr. K. Kabilan & Dr. V. Sakthivel	Slot	:	E2+TE2
Duration	:	90 Minutes	Max. Mark		50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Sub Sec.	Description	Marks
1.		How might the integration of Artificial Intelligence (AI) and Machine Learning (ML) algorithms in Internet of Vehicles (IoV) systems revolutionize transportation and urban planning? Explain the above scenario with the suitable use case of your choice.	10
2.		How can the Internet of Vehicles solutions be optimized to prioritize environmental sustainability and reduce the carbon footprint of transportation systems?	10
3.		How does network slicing contribute to improving Quality of Service (QoS) and Quality of Experience (QoE) for end-users across various applications and use cases? Justify the same using a case study of your choice.	10
4.		Consider the robotic scenario, the emergency and rescue operation with robots embedded with sensors, actuators and computation nodes. This system is implemented using Fog-enabled IoT deployment. Draw the software and hardware deployment with optimization. Find an optimization model with a formulation for energy consumption and cost for this application.	10
5.		Explain the importance of offload and onload computation facilities in smart farming, a fog-enabled IoT application. Draw the system architecture for application execution under this scenario. Elaborate on appropriate quality and quantity metrics for optimizing this application along with the details of the service lifecycle in which the optimization is considered.	10

**********All the best **********