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Roll No. : 360211372011

C109531(022)

B. Tech. (Fifth Semester) Examination Nov.-Dec. 2024

(New Scheme)

(AI, AIML and DS) (BT3109, BT3110, BT3113)

(Computer Science & Engg. Branch)

INTERNET of THINGS (IOT)

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. Part (a) from each question is compulsory and carry equal 4 marks and attempt any two of the remaining (b), (c) and (d) and carries equal 8 marks.

Unit-I

1. (a) Define IOT with their characteristics.

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- (b) What are the key milestones in the evolution of the Internet of Things (IoT)?
- (c) What are the main components of the IoT World Forum (IoTWF) standardized architecture?
- (d) Differentiate between Fog, Edge, and Cloud computing in the context of IoT.

Unit-II

- 2. (a) Define sensors and actuators.
- (b) What are the unique characteristics of LoRaWAN in IoT applications? Explain in detail.
- (c) Explain the role of IP versions in IoT and how they enable connectivity in constrained environments.
- (d) Compare and contrast CoAP and MQTT in terms of performance and use cases.

Unit-III

- 3. (a) What is a System on Chip (SoC)?

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- (b) What are the fundamental steps involved in the design methodology of IoT systems, and how do they contribute to the development process?
- (c) Compare the features and typical applications of Raspberry Pi and Arduino boards as IoT hardware platforms. What are the advantages and limitations of each?
- (d) Describe the role of a microcontroller in an embedded computing system. How does it differ from a microprocessor in terms of functionality and application?

Unit-IV

- 4. (a) What is data acquiring?
- (b) Differentiate between structured and unstructured data with example.
- (c) What are the IoT data analytics challenges? How to overcome them? Discuss in detail.
- (d) Write a short notes on :
 - (i) Data in rest Vs Data in motion

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- (ii) Everything as a service

Unit-V

5. (a) Enlist IoT/IIoT applications in all sectors.
- (b) What are the key components of an IoT-based air pollution monitoring system? Discuss sensors used for pollution measurement detail.
- (c) How can IoT-based street lighting systems be integrated with other smart city infrastructure? Write case study for smart city street light control and monitoring system.
- (d) Write a short notes with context to IoT system :
- (i) Supply chain and customer monitoring
 - (ii) Agriculture - Green House Control