



M.Sc. IV Semester Degree Examination, Sept./Oct. - 2024

MASTER OF SCIENCE

Internet of Things

(NEP)

Time : 3 Hours

Maximum Marks : 70

Note : Answer **any five** of the following questions with Question **No.1 (Q1) compulsory**, each question carries **equal** marks.

1. (a) With a neat diagram, explain the generic block diagram of an IoT device. **7**
- (b) Explain Publish-Subscribe and Exclusive-Pair communication model. **7**
2. (a) Explain the process specification step in the IoT design methodology. How does process specification contribute to the overall design of a weather monitoring system ? **7**
- (b) What is information model specification, and why is it critical in IoT design ? Give an example of data types and relationships that are important for this model. **7**
3. (a) Explain the history and philosophy behind the development of Python. Discuss its key features and why it has become a popular programming language. **7**
- (b) Compare and contrast Python's built-in data types and data structures : list, tuple, dictionary, and set. Provide examples of when to use each one. **7**
4. (a) Explain the key components of a Raspberry Pi board and their functions. **7**
- (b) Provide a basic example of a Python script that blinks an LED connected to a GPIO pin. **7**
5. (a) What are the best practices for securing a RESTful web API designed for IoT applications ? **7**
- (b) Discuss the role of real-time data analytics in IoT and how it differs from batch data analytics ? **7**



- 6.** (a) Discuss the process of application development for an IoT system. Include details on how you would handle user interface design, data visualization, and integration with IoT devices for weather monitoring system. **7**
- (b) Identify and discuss three Python packages that are particularly useful for Internet of Things (IoT) applications. Explain the functionalities of each package and provide example use cases. **7**
- 7.** (a) Explain how a Raspberry Pi can be used to improve agricultural practices. **7**
- (b) Illustrate how Amazon Web Services (AWS) can be utilized for IoT solutions. **7**
- 8.** Write short notes on the following : **5+5+4**
- (a) IoT Enabling Technologies
- (b) IoT level 1 design template
- (c) Python packages

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