

Code No: 157CD**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, February - 2025****INTERNET OF THINGS****(Common to CSE, CSIT, ITE, CSE(DS))****Time: 3 Hours****Max.Marks:75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) What are the characteristics of IoT? [2]
- b) Describe the Physical Design of IoT with examples of IoT Protocols. [3]
- c) Compare SDN and NFV in the context of IoT. [2]
- d) Explain the basics of IoT System Management with NETCONF. [3]
- e) What are the control flow statements in Python? [2]
- f) Discuss the file handling capabilities of Python with an example. [3]
- g) What are the serial communication interfaces available on Raspberry Pi? [2]
- h) Write a Python program to blink an LED connected to Raspberry Pi. [3]
- i) What are the features of cloud communication APIs for IoT? [2]
- j) Describe the process of designing a RESTful web API for IoT applications. [3]

PART – B**(50 Marks)**

- 2.a) State and explain the need for integrating IoT technologies in cloud computing.
 - b) What is an embedded system? Examine the applications of embedded systems. [5+5]
- OR**
- 3.a) Explain the application of IoT in agriculture.
 - b) Describe Wireless Sensor Networks as an IoT-enabled technology. [5+5]
- 4.a) Discuss the significance of SNMP in IoT System Management.
 - b) Elaborate on the role of network function virtualization in IoT. [5+5]
- OR**
- 5.a) Explain the structure and use of YANG in IoT systems.
 - b) Discuss how RESTful APIs are used in IoT communication. [5+5]
- 6.a) Explain any two built-in data structures in Python with examples.
 - b) Explain the concept of modules in Python and their importance. [5+5]
- OR**
- 7.a) How is the JSON module used in Python? Provide an example.
 - b) Explain the concept of classes in Python with an example. [5+5]

QA QA QA QA QA QA QA G

- 8.a) What is a Raspberry Pi, and why is it widely used in IoT projects?
- b) How can external gadgets be interfaced with Raspberry Pi? Explain [5+5]

OR

- 9. Explain how sensors like a temperature sensor can be interfaced with Raspberry Pi with an example application along with python code. [10]

- 10.a) How do communication APIs support IoT applications? Provide examples of commonly used APIs.

- b) Explain the role of a web server in managing IoT devices and data. [5+5]

OR

- 11.a) How does cloud storage enable real-time IoT data analysis?

- b) What is a Python web application framework? Name and describe any two commonly used frameworks. [5+5]

QA QA QA QA **---ooOoo---** QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G