

R18

Code No: 156DR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, January/February - 2025

FUNDAMENTALS OF INTERNET OF THINGS

(Common to CE, EEE, ME, CSE, EIE, MCT, CSIT, CE(SE), CSE(CS), CSE(AI&ML), CSE(DS), CSE(IOT), CSE(N), AI&DS, AI&ML, CSD)

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) Explain about sensing and actuation. [2]
- b) Write about communication protocols in IoT. [3]
- c) Differentiate between IoT and M2M. [2]
- d) How actuators are integrated with arduino? [3]
- e) How is Raspberry -Pi used in IoT? [2]
- f) Explain date and time functions in Python. [3]
- g) How is Raspberry-Pi different from Arduino? [2]
- h) Give the status of LED in Raspberry Pi. [3]
- i) What are the industrial IoT applications? [2]
- j) Explain about Sensor-Clouds. [3]

PART – B

(50 Marks)

- 2.a) What is Internet of Things? Define and explain its characteristics.
 - b) Describe the functional blocks of IoT and explain. [5+5]
- OR**
- 3.a) Explain the Physical design of IoT in detail.
 - b) Discuss about sensor networks and its relation with IoT. [5+5]
- 4.a) What is M2M service layer standardization? Explain.
 - b) How to integrate sensors with IoT? Discuss. [5+5]
- OR**
- 5.a) What is interoperability in IoT? Explain.
 - b) Give overview of Arduino programming. [5+5]
- 6.a) What are the components of Raspberry Pi? Explain.
 - b) Develop Python code for sending an Email using Raspberry board. [5+5]
- OR**
- 7.a) What are the different loop control statements available in python? Explain with suitable examples.
 - b) Write a Python program with Raspberry PI to interface external gadget. [5+5]

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8.a) Explain about Software Defined Networks (SDN) in detail.

b) Write steps to read data from Raspberry Pi and explain.

[5+5]

OR

9.a) List and explain popular commands used in Raspberry Pi.

b) Write a Python program on Raspberry Pi to blink an LED.

[5+5]

10.a) What is Cloud Computing? Explain its applications in Smart Grids.

b) How Cloud computing and IoT is used in Agriculture sector? Discuss.

[5+5]

OR

11.a) Explain the applications of IoT in Smart Cities and Smart Homes.

b) Describe the case study of Health care applications using IoT.

[5+5]

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