

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3091

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Unique Paper Code : 2513012004

Name of the Paper : Internet of Thing (DSE)

Name of the Course : **B.Sc. (H) Electronics**

Semester : IV (Under NEP UGCF Mode)

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are **seven** questions in all, out of which you must attempt any **five** questions.
3. **All** questions carry equal marks
4. **First** Question is Compulsory.

Q1.

- | | | |
|----|---|---|
| a. | Name any three IOT devices other than Arduino/Raspberry Pi. | 3 |
| b. | Classify sensors in various Domain. | 3 |
| c. | Explain Xively in brief. | 3 |
| d. | What is wireless bluetooth Sensor? | 3 |
| e. | Differentiate between M2M and IOT. | 3 |
| f. | What is NETCONF-YANG in context of IOT? | 3 |

Q2.

- | | | |
|----|---|---|
| a. | Explain different components of IOT system in detail ? | 6 |
| b. | Describe an example of IOT service that uses publish-subscribe communication model. | 6 |
| c. | Explain characteristic of IOT systems in detail. | 6 |

Q3.

- | | | |
|----|---|---|
| a. | Explain various levels of IOT Systems with appropriate Examples | 6 |
| b. | Differentiate between SDN and NFV. | 6 |
| c. | Why we need IOT system management? Explain SNMP and give limitations too. | 6 |

P.T.O.

Q4.

- a. What are transducers. Write the main characteristics of Sensors. 6
- b. Explain the different type of sensors which are needed in IOT Systems. 6
- c. Explain IOT protocols in different layers of physical design. 6

Q5.

- a. Illustrate programming Raspberry Pi/ Arduino with Python with suitable Example? 6
- b. Describe the purpose of the Serial Peripheral Interface (SPI) and Inter-Integrated Circuit (I2C) communication protocols. Give one example of a type of sensor or device that might use either SPI or I2C to communicate with a Raspberry Pi. 6
- c. Give a detail introduction of cloud service model for cloud computing 6

Q6.

- a. What are the steps of developing IOT Application? Discuss each steps in detail. 6
- b. Distinguish between unipolar and bipolar stepper motors. Discuss the criteria for the selection of transducers/sensors for various IoT applications 6
- c. Compare WebSocket –based communication API to REST-based Communication API. 6

Q7.

- a. What is the purpose of Actuators in IOT? Discuss the different type of Actuators used in IOT. 6
- b. In a healthcare setting, data privacy is critical. Discuss how your designed system will handle device data storage, authentication, and authorization of devices. Explain how unstructured data storage on a cloud server would be managed for this application. 6
- c. Discuss the role of YANG and Trans API modules in device management. 6