Council for Technical Education and Vocational Training
Office of the Controller of Examinations
Sanothimi, Bhaktapur
Regular/Back Exam – 2082 Shrawan/Bhadra

Program: **Diploma in Information Technology/ Computer Engineering**

Year/Part: **III/II (2022)** © Arjun

Subject: **Internet of Things**

Full Marks: 80

Pass Marks: 32

Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

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Attempt any **EIGHT** questions.

1. What are the four layers of IoT architecture? What is the primary function of each layer? [5+5]

2. Explain the main environmental characteristics that impact the performance of IoT systems. [10]

3. What are the key technologies that enable the functioning of IoT systems. [10]

4. Differentiate between M2M and WSN. List respective protocols. [8+2]

5. Explain python programming language. Why it is good programming language for Raspberry Pi? [4+6]

6. What are the key components of an IoT security model? [10]

7. What are the role of data analytics in IoT applications? How does data analysis enhance functionality and efficiency in IoT system? [4+6]

8. Describe the role of APIs in IoT. [10]

9. Write short notes on: (any **TWO**) [2×5]

   a. RFID technology

   b. Satellite technology

   c. Vulnerabilities of IoT

   d. IoT devices

Good Luck !

Council for Technical Education and Vocational Training
Office of the Controller of Examinations
Sanothimi, Bhaktapur
Regular/Scholarship Exam – 2081 Kartik/Mangsir

Program:	Diploma in Computer/Information Technology Engineering	Full Marks: 80
Year/Part:	III/II (2022) © Arjun	Pass Marks: 32
Subject:	Internet of Things	Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks

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Attempt ALL questions.

1. What is internet of things? Explain the IoT architecture with diagram. [2+6]

2. Discuss the importance of identifying IoT objects and services. How does proper identification contribute to the efficiency and security of IoT systems? [4+4]

3. Evaluate the role of key IoT technologies such as sensor technology, RFID and satellite in enhancing IoT application. [8]

4. Explain the importance of IoT protocol standardization. Discuss in brief about SCADA and BACNet. [2+6]

5. Differentiate between M2M and WSN protocol. [8]

6. Describe the process of building an IoT system using Raspberry Pi. What are key components and steps involved? [8]

7. Discuss the role of Linux in Managing Raspberry Pi for IoT application. What are the advantages of using Linux on Raspberry Pi? [4+4]

8. Discuss the various vulnerabilities of IoT devices and networks. How do these vulnerabilities impact the overall security of IoT system? [8]

OR

Analyze the concept of IoT security tomography and the layered attacker model. How do these frameworks help in understanding and mitigating IoT security threats?

Cont. ......

9. Explain the design constraints and challenges faced in implementing IoT solutions in real world scenarios. Mention the challenges that are faced in countries like Nepal. [8]

10. Write short notes on: (any **TWO**) [2×4]
    a. Smart grid
    b. e-healthy body area network
    c. Amazon web services for IoT
    d. Smart cities

Good Luck !