PURBANCHAL UNIVERSITY
2023
Bachelor in Information Technology (B.I.T.)/Fifth Semester/Final

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BIT305CO: Internet and Things (New Course)

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A
2×12=24

Answer TWO questions.

1. What is IoT? Explain applications of IoT in different sectors. Explain advantages of IoT. 2+5+5

2. Explain working mechanism of any five mostly used sensor types in IoT.

3. Explain the classification of IoT protocols. Discuss the functions of SCADA and RFID protocols in IoT. 6+6

Group B
7×8=56

Answer SEVEN questions.

4. Explain the risk and benefits of interoperability of IoT development.

5. What do you mean by IoT security? Discuss about security challenges and requirements for IoT.

6. "IoT is ideal for building smart cities. Explain the statement with reference to the available software and management tools for IoT.

7. Explain the real-time usage of RASPBERRY PI in IT industry.

8. What is CoAP? Write about Zigbee technology and its advantages.

9. Discuss about the components of an IoT security model.

10. What is cloud in IoT? Explain the types of cloud storage in IoT.

11. Write about environment and traffic characteristics of IoT.

12. Write short notes on any TWO:
    (a) Device intelligence   (b) Assess control   (c) IoT devices

ST COLLEGE OF INFORMATION TECHNOLOGY
Kamalpokhari, Kathmandu
2023

Bachelor of Information Technology (B.I.T.)
Time: 03:00 hrs.
BIT305CO: Internet of Things

Fifth Semester /First Term Exam
Full marks: 80 / Pass Marks: 40

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

Group-A

Answer TWO questions: **[2x12=24]**

1. Contrast different frameworks for IoT development in details with proper diagram.

2. Define RFID. Explain contactless card and RFID tag with its characteristics in detail.

3. What are the different issues with IoT standardization? Explain Zigbee architecture with proper diagram.

Group-B

Answer EIGHT questions: **[8x7=56]**

4. Define Internet of Things. Explain the major components of IoT.

5. Describe different characteristics of IoT along with its advantages and disadvantages.

6. Define middleware. Differentiate between IoT and M2M with examples.

7. Define sensor. Explain its basic components in detail. Also state the different scale of sensors with respect to their size and range.

8. Describe IEEE 802.15.4 technology in detail.

9. Explain the different structural aspects of the IoT in detail.

10. Explain BACnet protocols in detail including its characteristics.

11. What are the different vulnerabilities of IoT? Explain each.

12. Write short notes on (ANY TWO):   **[2x3.5=7]**
    a. Device Intelligence
    b. CoAP
    c. 6LowPAN

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KIST
KIST College of
Information Technology

Bachelor of Information Technology (B.I.T.)
Time: 03:00 hrs.
BIT305CO: Internet of Things

Fifth Semester/Pre-Board Exam
Full marks: 80 / Pass Marks:40

Candidates are required to give their answers in their own words as far as practicable.
Figures in the margin indicate full mark

Set-B
Group-A

Attempt any TWO Questions: [2×12=24]

1. What are the different issues with IOT standardization? Explain ZigBee architecture with proper diagram.

2. Explain IOT security tomography addressing different layers. Also clarify key elements of security in detail.

3. Define sensors and actuators. How does they differ in IOT? State the different scale of sensors with respect to their size and range.

Group-B

Attempt any SEVEN Questions: [7×8=56]

4. Define middleware. Differentiate between IOT and M2M with examples.

5. What do you mean by IOT gateway? What is the role of a gateway in IOT?

6. Explain asset tracking and management with its critical elements.

7. Explain the different structural aspects of the IOT in detail.

8. What do you mean by Raspberry PI? List and explain different pins on Raspberry PI for SPI interface.

9. What are the different vulnerabilities of IOT? Explain each.

10. What do you mean by cloud for IOT? What are the specific security considerations for cloud based IOT deployment?

11. Write short notes on (ANY TWO): [2x4=8]

    a. CoAP

    b. SCADA

    c. Vulnerabilities of IOT.

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Candidates are required to give their answer in their own words as far as practicable. Figures in the margin indicate full marks.

GROUP – A Long-Answer Type Questions

Attempt any TWO questions.   [2 X 12=

1. What is IOT? Why it is becoming popular in different sectors? Explain advantages of IOT.
2. What impacts will the internet of things (IOT) have on the agriculture sector? Explain in brief.
3. Explain the architecture and application of IOT cloud.

GROUP – B Short-Answer Type Questions

Attempt any SEVEN questions.   [8×7=56

4. Explain fundamental components of IoT?
5. Explain the steps of identification of IOT objects and services.
6. Explain the merits of raspberry pi compared to arduino.
7. Explain the real-time usage of raspberry pi in industry.
8. What is the application of IoT in environmental monitoring?
9. Explain open source and open architecture.
10. Explain importance of security in IOT.
11. Write short notes on: (any two)

   a) IoT protocols
   b) Security in IoT
   c) Network infrastructure for IoT

*************** The end ***************

Bachelor of Information Technology   Fifth Semester/ Pre-Board

Internet of Things   Full Marks: 80
Time: 03: 00 hours   Pass Marks: 20

*Candidates are required to give their answers in their own words as far
as practicable. Figure in the margin indicates full marks.*

Group A (Any 2 questions)   2 x 12 = 24

1. Identify and provide a comprehensive overview of three prominent communication protocols used in IoT applications.

2. Identify and analyze the privacy challenges that arise in the context of widespread IoT adoption. Discuss how the continuous collection of data from IoT devices, often involving personal and sensitive information, poses challenges to individual privacy.

3. Provide a detailed overview of the fundamental mechanisms that underpin the functionality of the Internet of Things. Discuss the roles of sensing, communication, data processing, and actuation in the context of IoT mechanisms.

Group B (Any 7 questions) 8 x 7 = 56

1. Explain IoT architecture and describe their inter-relationship between them.

2. Which communication protocols are commonly used in IoT, and what factors influence the choice of a particular protocol in IoT applications?

3. Briefly explain the role of edge computing in IoT architectures and how it addresses challenges associated with data processing and latency.

4. What are the primary privacy challenges associated with the vast amount of data generated by IoT devices, and how can these challenges be mitigated?

5. Explain the significance of data governance in IoT ecosystems and how it contributes to responsible and ethical use of IoT data.

6. Provide an example of a real-world application where IoT technology has had a significant positive impact, considering aspects such as efficiency, resource utilization, or user experience.

7. Briefly explain the basic principles of Radio-Frequency Identification (RFID) technology and how it is used in IoT applications.

8. Describe a real-world scenario where an IoT framework, RFID protocols, and SCADA protocols are seamlessly integrated to optimize a specific industrial process.

9. What is a Raspberry Pi, and how does it differ from traditional computers? Provide an overview of its hardware components and capabilities.