

END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY-JUNE, 2025

Paper Code: BCA-306

Subject: Internet of Things

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as directed. Internal choice is indicated.

- Q1 Attempt **any Five** of the following questions: (5x5=25)
- What are the sources of IoT?
 - Explain the technology behind IoT.
 - Differentiate between CoAP and MQTT.
 - What are sensors? Classify the sensors based on input, output and data types.
 - Define Actuators. Specify the types of actuators with their advantages and disadvantages.
 - Explain the architecture of basic embedded system.
 - What are the different sensor deployment strategies? Explain using examples.
 - List the components and communication technologies required to automate smart cards using IoT.
- Q2 a) Define Internet of Things. What are the visions and characteristics of IoT? (5)
b) With the help of neat diagrams, describe the levels of IoT with an example each. (5)
c) Differentiate between M2M and IoT. (2.5)

OR

- Q3 a) Diagrammatically explain the architectural view of IoT. Also explain the stages or layers of IoT architecture. (6.5)
b) Explain the wired and wireless communication technologies used in IoT. (6)
- Q4 a) What is Wireless Sensing Networks (WSN). Explain the components and each layer of WSN architecture. (6.5)
b) Write short notes on (Any Two): (6)
i. Arduino uno
ii. Raspberry Pi
iii. Beagle Bone

OR

- Q5 a) Explain the principle of RFID using neatly labelled diagram. Also specify the advantages and disadvantages of RFID in IoT applications. (6.5)
b) Differentiate between (Any Two): (6)
i. Embedded Systems and IoT
ii. Microcontroller and Microprocessor
iii. Sensor and Smart sensor

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- Q6 a) Identify and explain the issues while communication and accessing data in wireless medium through IoT devices. (6)
b) List the IoT devices required for blinking of LED using Arduino Uno. Explain using circuit diagram. Also specify the functions required to compile and run the code successfully (6.5)

OR

- Q7 a) Explain in detail the survey routing protocols used by routers to communicate in wireless sensor network. (6)
b) What is a sketch and its extension? Explain the components and working of Arduino IDE using neatly labelled diagram? (6.5)
- Q8 a) Is IoT prone to developmental and designing challenges? If yes, justify your answer using appropriate statements. (6.5)
b) Design the circuit diagram for smart switch in home automation. Explain each device to be used, communication technologies and network protocols applicable for the same. (6)

OR

- Q9 a) What are the security challenges in the world of IoT? How can they be resolved? (6.5)
b) Design the circuit diagram for automating street lights in smart city. Explain each device to be used, communication technologies and network protocols applicable for the same. (6)

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