

Seat
No.

Set P

**S.Y. (B.Tech.) (Electronics & Computer Engineering) (Sem - II) (New)
(NEP CBCS) Examination: October/November - 2025
AI Technology - (IoT) And Smart Systems (ECEHON-018)**

Day & Date: Friday, 26-12-2025

Max Marks: 70

Time: 03:00 PM To 06:00 PM

- Instructions:** 1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in Answer Book Page no 02 (Starting page of the Answer Book). Each question carries one mark.
2) Don't forget to Mention question paper set (P/Q/R/S) on top of page.
3) Figures to the right indicates full marks.
4) Assume suitable data if required.

MCQ/Objective Type Questions

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct Answer.

14

- 1) 6LoWPAN is primarily used to enable _____.
 - a) Wired communication
 - b) IPv6 over low-power wireless networks
 - c) Cloud computing
 - d) Audio transmission
- 2) Which routing protocol is designed for low-power and lossy networks in IoT?

a) RIP	b) RPL
c) OSPF	d) BGP
- 3) Which of the following is a lightweight publish-subscribe protocol used in IoT?

a) HTTP	b) MQTT
c) FTP	d) SMTP
- 4) Which security protocol is used to secure communication over UDP in IoT?

a) TLS	b) DTLS
c) SSH	d) SFTP
- 5) Which of the following best defines IoT?
 - a) A social media platform
 - b) A network of connected devices exchanging data
 - c) A type of cloud storage
 - d) A wireless router
- 6) Which layer of the IoT architecture is responsible for data sensing and collection?

a) Network Layer	b) Middleware Layer
c) Perception Layer	d) Application Layer

- 7) Which of the following is an enabling technology for IoT?
- a) Bluetooth
 - b) Cloud computing
 - c) RFID
 - d) All of the above
- 8) Which device is used to collect physical data like temperature or pressure?
- a) Actuator
 - b) Sensor
 - c) Microprocessor
 - d) Gateway
- 9) The main function of a gateway in IoT is to ____.
- a) Provide cloud storage
 - b) Convert analog to digital signals
 - c) Act as a bridge between devices and the network
 - d) Control all sensors
- 10) An example of an embedded system used in IoT is ____.
- a) Mobile phone
 - b) Desktop computer
 - c) Arduino Uno
 - d) Television
- 11) In which communication model does a client send a request and the server responds?
- a) Push-Pull
 - b) Publish-Subscribe
 - c) Request-Response
 - d) Peer-to-Peer
- 12) Which communication model involves a broker to manage messages between publisher and subscriber?
- a) Request-Response
 - b) Push-Pull
 - c) Publish-Subscribe
 - d) Peer-to-Peer
- 13) Which model is most suitable for delayed processing of data?
- a) Publish-Subscribe
 - b) Push-Pull
 - c) Request-Response
 - d) All of the above
- 14) Which protocol provides a large address space suitable for IoT devices?
- a) IPv4
 - b) IPv6
 - c) FTP
 - d) SMTP

Seat No.	
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Set **R**

**S.Y. (B.Tech.) (Electronics & Computer Engineering) (Sem - I) (New)
(NEP CBCS) Examination: October/November – 2025
AI Technology - (lot) And Smart Systems (ECEHON-01B)**

Day & Date: Friday, 26-12-2025
Time: 03:00 PM To 06:00 PM

Max. Marks: 56

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Section – I

- Q.2 Attempt the following. (Any Four)** **16**
- Draw a neat labeled diagram of IoT architecture.
 - Define IoT and list its key characteristics.
 - List different types of sensors commonly used in IoT.
 - Differentiate between Push-Pull and Request-Response communication models.
 - Give real-life examples of each communication model.
- Q.3 Attempt the following. (Any Two)** **12**
- Explain how enabling technologies like cloud, big data, and AI support IoT systems.
 - Describe how data flows from devices to the cloud using gateways.
 - Explain various IoT communication models in detail.

Section – II

- Q.4 Attempt the following. (Any Four)** **16**
- What is IPv6? Why is it important in IoT?
 - Differentiate between HTTP and HTTPS.
 - Write a short note on security challenges in IoT.
 - Mention any four security challenges in IoT.
 - Why is encryption important in IoT communication?
- Q.5 Attempt the following. (Any Two)** **12**
- Explain the working of IPv6 and 6LoWPAN protocols in IoT.
 - Compare MQTT, AMQP, and HTTP protocols.
 - Explain the use of different data protocols in IoT.