NPTEL Online Certification Courses

Indian Institute of Technology Kharagpur

# Introduction to Internet of Things

## Assignment-Week 4

**TYPE OF QUESTION: MCQ/MSQ**

**Number of questions**: 15 **Total marks: 15 X 1= 15**

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**QUESTION 1:**

When an intruder enters into the agricultural field through the boundary (perimeter) of the field, a/an _____ sensor can be used to detect the object and a/an _____ sensor can be used to sense the distance at which the object is located.

a. PIR, Ultrasonic
b. Ultrasonic, PIR
c. Humidity, PIR
d. None of these

**Correct Answer: a. PIR, Ultrasonic**

**Detailed Solution:** When an intruder enters into the agricultural field through the boundary (perimeter) of the field, a PIR sensor can be used to detect the object and an Ultrasonic sensor can be used to sense the distance at which the object is located.

See lecture 16 (Sensor Networks-III) @ 15:40

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**QUESTION 2:**

_____ is defined as, all the nodes are connected in the network, so that sensed data can reach to sink node?

a. Coverage
b. Connectivity
c. Both (a) and (b)
d. None of these

**Correct Answer: b. Connectivity**

**Detailed Solution:** Connectivity is defined as, all the nodes are connected in the network, so that sensed data can reach to sink node.

See lecture 17 (Sensor Networks-IV) @ 02:14

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**QUESTION 3:**

The objective of coverage in WSN is.

a. To use a minimum number of sensors and maximize the network lifetime
b. To use a maximum number of sensors and maximize the network lifetime
c. To use a minimum number of sensors and minimize the network lifetime
d. To use a maximum number of sensors and minimize the network lifetime

**Correct Answer: a. To use a minimum number of sensors and maximize the network lifetime**

**Detailed Solution:** The objective of coverage is to use a minimum number of sensors and maximize the network lifetime.

See lecture 17 (Sensor Networks-IV) @ 08:48

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**QUESTION 4:**

State True or False

**Statement-I**: If transmission range ≤ 2* sensing range, coverage implies connectivity.

a. Statement-I is True
b. Statement-I is False

**Correct Answer: b. Statement-I is False**

**Detailed Solution:** If transmission range ≥ 2* sensing range, coverage implies connectivity.

See lecture 17 (Sensor Networks-IV) @ 05:46

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**QUESTION 5:**

A mobile entity that collects the data from sensor nodes goes to the sink, and delivers the collected data from different sensor nodes are called?

a. Data Molecule
b. Static Node
c. Data Mules
d. None of these

**Correct Answer: c. Data Mules**

**Detailed Solution:** A mobile entity that collects the data from sensor nodes goes to the sink, and delivers the collected data from different sensor nodes are called Data Mules.

See lecture 18 (Sensor Networks-V) @ 07:11

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**QUESTION 6:**

Human-centric Sensing is possible because of?

a. Smartphone and PDAs
b. Miniaturization and Proliferation of devices
c. Both (a) and (b)
d. None of these

**Correct Answer: c. Both (a) and (b)**

**Detailed Solution:** Human-centric Sensing is possible because of Smartphone, PDAs, Miniaturization, and Proliferation of devices.

See lecture 18 (Sensor Networks-V) @ 10:51

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**QUESTION 7:**

Which of the following are the roles played by humans in Human-centric Sensing?

a. Sensing Targets
b. Sensor Operators
c. Data Source
d. All of these

**Correct Answer: d. All of these**

**Detailed Solution:** The three distinct roles (not necessarily mutually exclusive) played by humans are –

- Sensing Targets
- Sensor Operators
- Data Source

See lecture 18 (Sensor Networks-V) @ 12:35

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**QUESTION 8:**

Which of the following is/are NOT goal of Participatory Sensing?

a. To only collect data
b. Not just collect data, but allow common people to access data and share knowledge
c. To only access data
d. Both (a) and (c)

**Correct Answer: d. Both (a) and (c)**

**Detailed Solution:** The goal of Participatory Sensing is not just collect data, but allow common people to access data and share knowledge.

See lecture 18 (Sensor Networks-V) @ 13:00

**QUESTION 9:**

The two popular network topologies in UAV networks are

a. Ring
b. Mesh and Star
c. Bus
d. All of these

**Correct Answer: b. Mesh and Star**

**Detailed Solution:** The two popular network topologies in UAV networks are Mesh and Star topologies.

See lecture 19 (UAV Networks) @ 03:26

**QUESTION 10:**

Which of the following is NOT an issue in UAV networks?

a. Slow change in network topology
b. Malfunctioning of UAVs
c. Intermittent link nature
d. Relative position of UAV may change

**Correct Answer: a. Slow change in network topology**

**Detailed Solution:** Key issues in UAV networks are –

- Frequently change in network topology
- Relative position of UAV may change
- Malfunctioning of UAV
- Intermittent link nature

See lecture 19 (UAV Networks) @ 05:23

**QUESTION 11:**

The scalability in single UAV system as compared to multi-UAV system is?

a. Limited
b. High
c. Very High
d. None of these

**Correct Answer: a. Limited**

**Detailed Solution:** The scalability in single UAV system as compared to multi-UAV system is limited.

See lecture 19 (UAV Networks) @ 07:47

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**QUESTION 12:**

Typical types of mesh networks in UAV networks are

a. Solid Mesh and Hierarchical Mesh
b. Plane Mesh and Solid Mesh
c. Flat Mesh and Hierarchical Mesh
d. None of these

**Correct Answer: c. Flat Mesh and Hierarchical Mesh**

**Detailed Solution:** Typical types of mesh networks in UAV networks are –

- Flat Mesh
- Hierarchical Mesh

See lecture 19 (UAV Networks) @ 12:48

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**QUESTION 13:**

State True or False

Statement-I: SCADA is designed for isolated systems using proprietary solutions,

whereas M2M is designed for cross-platform integration.

a. False
b. True

**Correct Answer: b. True**

**Detailed Solution:** SCADA is designed for isolated systems using proprietary solutions, whereas M2M is designed for cross-platform integration.

See lecture 20 (Machine to Machine Communication) @ 5:25

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**QUESTION 14:**

Which of the following is NOT a feature of M2M?

a. Large number of nodes or devices
b. High cost
c. Energy efficient
d. Small traffic per machine/device

**Correct Answer: b. High cost**

**Detailed Solution:** Features of M2M –

- Large number of nodes or devices
- Low cost
- Energy efficient
- Small traffic per machine/device

See lecture 20 (Machine to Machine Communication) @ 9:24

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**QUESTION 15:**

Which of the following is NOT an M2M node type?

a. Low End Node
b. High End Node
c. Out End Node
d. None of these

**Correct Answer: c. Out End Node**

**Detailed Solution:** The three node types of M2M are –

- Low end node
- Mid end node
- High end node

See lecture 20 (Machine to Machine Communication) @ 10:35

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