# Concepts on IOT Questions

## Latest Concepts on IOT MCQ Objective Questions



**Question 1:**

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Which of the following is a challenge in creating a Web app for IoT?

1. security
2. scalability
3. Data storage
4. More than one of the above
5. None of the above

**Answer** (Detailed Solution Below)

Option 4 : More than one of the above

**Concepts on IOT Question 1 Detailed Solution**

The correct answer is **option 4.**

**Concept:**

**Internet of Things:**

The Internet of Things refers to the collective network of linked devices as well as the technology that enables the communication between devices and the cloud as well as amongst devices.

**Challenges of creating a web app for IoT:**

- **Security** is one of the most difficult aspects of designing an IoT web app since networked devices create various access points. Threat actors can take advantage of these entry points to get access to sent data, the user's location, and other vital information. To defend against data leaks, organizations must also consider data privacy and encrypt data stored, processed, and transferred by IoT devices.
- **Scalability** will be critical in dealing with the Internet of Things fast expansion (IoT). This implies that IoT applications must be able to serve an expanding number of connected devices, users, application features, and analytics capabilities while maintaining service quality.
- **Data storage** is the process of storing data acquired from sensors and devices at the edge or in the cloud for long-term or short-term use. The edge gateway performs functions such as sensor data gathering, data pre-processing, and cloud connectivity security.

**Hence the correct answer is** All the above.



**Question 2:**

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Which among the following is not true about IoT?

1. IoT uses Micro Controllers
2. IoT is fully safe
3. IoT uses Sensors and Actuators
4. More than one of the above
5. None of the above

**Answer** (Detailed Solution Below)

Option 2 : IoT is fully safe

**Concepts on IOT Question 2 Detailed Solution**

The correct answer is **IoT is fully safe**

## Key Points

**IoT (Internet of Things)** involves connecting various devices and objects to the internet, allowing them to communicate and exchange data.

- **IoT is fully safe:**
  - **This statement is not entirely true.** While IoT offers numerous benefits, including efficiency and convenience, it also introduces **security challenges**.
  - Connecting devices to the internet expands th**e potential attack surface**, making them susceptible to **cyber threats**.
  - Security vulnerabilities can arise due to factors such as inadequate encryption, weak authentication mechanisms, and insufficient protection against **unauthorized access**.

**Question 3:**

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Which standard is commonly associated with industrial automation and SCADA systems in the context of IoT?

1. KNX
2. Modbus
3. Zigbee
4. BACNet

**Answer** (Detailed Solution Below)

Option 2 : Modbus

**Concepts on IOT Question 3 Detailed Solution**

The correct answer is **Modbus**

## Key Points

- **Modbus:**
  - This is the correct answer. Modbus is a widely used communication protocol in industrial automation and SCADA systems. It is known for its simplicity and ease of integration, making it a common choice for connecting devices in manufacturing plants, utilities, and other industrial settings.

## Additional Information

- **KNX:**
  - KNX (Konnex) is a standardized communication protocol for smart homes and buildings,

It is commonly used for home and building automation but is not as directly associated with industrial automation and SCADA systems.

- **Zigbee:**
  - Zigbee is a low-power, short-range wireless communication protocol primarily used in IoT applications. While it may find application in industrial IoT scenarios, it is not as specifically associated with traditional industrial automation and SCADA systems as Modbus.
- **BACNet (Building Automation and Control Networks):**
  - BACNet is a communication protocol specifically designed for building automation and control systems. While it is relevant to the control of building systems like HVAC, lighting, and security, it may not be as commonly associated with broader industrial automation and SCADA applications as Modbus.



**Question 4:**

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Which communication layer is responsible for secure data transmission in Zigbee networks?

1. Network Layer
2. Application Layer
3. APS Layer
4. Transport Layer

**Answer** (Detailed Solution Below)

Option 3 : APS Layer

**Concepts on IOT Question 4 Detailed Solution**

The correct answer is **APS Layer**

## Key Points

- **APS Layer (Application Programming Interface (API) sub-Layer):**
  - This is the correct answer. The APS Layer in Zigbee networks is responsible for secure data transmission.
  - It handles functions related to data encapsulation, framing, and security services.
  - The security features, including encryption and authentication, are typically implemented at the APS layer to ensure the confidentiality and integrity of data.

## Additional Information

- **Network Layer:**
  - The Network Layer is responsible for routing and forwarding data packets in a network. While it plays a crucial role in the overall communication process, it is not primarily responsible for secure data transmission. Security features are typically implemented at higher layers in the protocol stack.
- **Application Layer:**
  - The Application Layer deals with end-to-end communication and provides a means for software applications to communicate over a network. While it is involved in the communication process, the Application Layer itself is not primarily responsible for implementing security features like encryption and authentication.
- **Transport Layer:**
  - The Transport Layer is responsible for end-to-end communication, error detection, and correction. While it plays a crucial role in reliable data transmission, security features like encryption and authentication are typically implemented at higher layers, such as the Application or APS layer.



**Question 5:**

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What is the primary purpose of the IEEE 802.15.4 protocol in IoT?

1. Data Encryption
2. Wireless Sensor Networking
3. Device Authentication

4. Cloud Computing

**Answer** (Detailed Solution Below)

Option 2 : Wireless Sensor Networking

**Concepts on IOT Question 5 Detailed Solution**

The correct answer is **Wireless Sensor Networking**

## Key Points

- **Wireless Sensor Networking:**
  - This is the correct answer. **IEEE 802.15.4** is designed to support **Wireless Sensor Networking** in IoT applications.
  - It defines the physical layer and media access control for low-rate wireless personal area networks (LR-WPANs), providing a framework for communication between low-power devices, such as sensors, in a wireless network.

## Additional Information

- **Data Encryption:**
  - While data encryption is an important aspect of IoT security, IEEE 802.15.4 itself does not focus primarily on encryption. Instead, encryption is often implemented as an additional layer on top of the communication protocols to ensure secure data transmission.
- **Device Authentication:**
  - While authentication is an important security aspect in IoT, IEEE 802.15.4 itself does not specifically address device authentication. Authentication is typically implemented at higher layers of the protocol stack or through additional security mechanisms.
- **Cloud Computing:**
  - IEEE 802.15.4 is not directly related to cloud computing. Its primary focus is on enabling communication between devices in local wireless networks. However, devices using IEEE 802.15.4 for communication may eventually contribute data to cloud-based services as part of broader IoT applications.

**Top Concepts on IOT MCQ Objective Questions**

**Question 6** View this Question Online >

**Comprehension:**

Read the following paragraph and answer the five questions that follow:

The internet of things (IOTs) and data analytics are the most significant emerging technologies in recent years that have a disruptive and transformational effect to every industry around the world. The IOT is a technology digitizing the physical world and is a prominent driver to the fourth industrial revolution (IR) that will have the impacts across the business and industry continuum around the world. Business executives and informed citizens are positively anticipating of the fourth IR and digital revolution with low impacts on employments. Applying IOT in to realm of our lives opens-up a host of new opportunities and challenges for consumers, enterprise and Government, IOT products and services enable improvements in productivity and time to market and create thousands of businesses and millions of jobs. Our lives are improved but at the cost of higher energy consumption that directly impacts our environment.

Which of the following communication technologies has highest data rate?

1. Mi-Wi
2. 4G
3. LoRa
4. Weightless - W

**Answer** (Detailed Solution Below)

Option 1 : Mi-Wi

**Concepts on IOT Question 6 Detailed Solution**

**Mi-Wi**: Mi-Wi has the highest data rate of up to 1 Gbps. This is because Mi-Wi is a proprietary technology that is optimized for high-speed data transmission.

**4G**: 4G has a data rate of up to 300 Mbps. This is because 4G is a third-generation mobile communication technology that is capable of providing high-speed data connections.

**LoRa**: LoRa has a data rate of up to 50 kbps. This is because LoRa is a low-power wide-area network (LPWAN) technology that is designed for long-range communication and low-power consumption

**Weightless - W**: Weightless - W has a data rate of up to 500 kbps. This is because Weightless - W is a low-power wide-area network (LPWAN) technology that is designed for low-power consumption and long-range communication.

Hence option 1 is correct.



**Question 7** View this Question Online >

**Comprehension:**

Read the following paragraph and answer the five questions that follow:

The internet of things (IOTs) and data analytics are the most significant emerging technologies in recent years that have a disruptive and transformational effect to every industry around the world. The IOT is a technology digitizing the physical world and is a prominent driver to the fourth industrial revolution (IR) that will have the impacts across the business and industry continuum around the world. Business executives and informed citizens are positively anticipating of the fourth IR and digital revolution with low impacts on employments. Applying IOT in to realm of our lives opens-up a host of new opportunities and challenges for consumers, enterprise and Government, IOT products and services enable improvements in productivity and time to market and create thousands of businesses and millions of jobs. Our lives are improved but at the cost of higher energy consumption that directly impacts our environment.

Arrange the following IOT technologies in ascending order of their wireless range:

(A) Near-field communication

(B) Wi-Fi

(C) Blue tooth low energy

(D) Cellular networks

Choose the correct answer from the options given below:

1. (A), (B), (C), (D)

2. (A), (C), (B), (D)

3. (B), (A), (C), (D)

4. (B), (C), (A), (D)

**Answer** (Detailed Solution Below)

Option 2 : (A), (C), (B), (D)

**Concepts on IOT Question 7 Detailed Solution**

A) Near-field communication B) Blue tooth low energy C) Wi-Fi D) Cellular networks

A) **Near-field communication**: This technology has very short range, typically up to 4 cm. It is used for very short-range communication between two devices.

B) **Bluetooth Low Energy**: This technology has a range of up to 100 meters. It is used for short-range communication between two devices.

C) **Wi-Fi**: This technology has a range of up to 100 meters. It is used for medium-range communication between two or more devices.

D) **Cellular Networks**: This technology has a range of up to 10 kilometers. It is used for long-range communication between two or more devices.

Ascending order of wireless range: Near-field communication, Bluetooth Low Energy, Wi-Fi, Cellular Networks.

Hence option 2 is correct.



**Question 8** View this Question Online >

**Comprehension:**

Read the following paragraph and answer the five questions that follow:

The internet of things (IOTs) and data analytics are the most significant emerging technologies in recent years that have a disruptive and transformational effect to every industry around the world. The IOT is a technology digitizing the physical world and is a prominent driver to the fourth

industrial revolution (IR) that will have the impacts across the business and industry continuum around the world. Business executives and informed citizens are positively anticipating of the fourth IR and digital revolution with low impacts on employments. Applying IOT in to realm of our lives opens-up a host of new opportunities and challenges for consumers, enterprise and Government, IOT products and services enable improvements in productivity and time to market and create thousands of businesses and millions of jobs. Our lives are improved but at the cost of higher energy consumption that directly impacts our environment.

Match List I with List II:

| **List I (Technologies for IOT)** | | **List II (Definitions)** | |
|---|---|---|---|
| (A) | Sensors | (I) | Analytical tools that improve the ability to describe phenomenons |
| (B) | Networks | (II) | Commonly accepted prescriptions for action |
| (C) | Augmented intelligence | (III) | A device that generates an electronic signal from a physical condition |
| (D) | Standards | (IV) | A mechanism for communicating an electronic signal |

Choose the correct answer from the options given below:

1. (A) - (II), (B) - (I), (C) - (III), (D) - (IV)

2. (A) - (III), (B) - (IV), (C) - (II), (D) - (I)

3. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

4. (A) - (II), (B) - (I), (C) - (IV), (D) - (III)

**Answer** (Detailed Solution Below)

Option 2 : (A) - (III), (B) - (IV), (C) - (II), (D) - (I)

**Concepts on IOT Question 8 Detailed Solution**

**Sensors** are devices that measure or detect a physical or chemical property and transmit its information as an electrical signal. They are used in a variety of applications, including industrial automation, environmental monitoring, and medical diagnostics.

Common examples of sensors include thermometers, pressure gauges, motion detectors, and light

sensors.

In the context of Internet of Things (IoT) technologies, a **network** is a system of interconnected devices that can communicate with each other in order to exchange information and data.

These networks can be wired, wireless, or a combination of both. Network technologies such as Wi-Fi, Bluetooth, Z-Wave, and LoRaWAN allow IoT devices to communicate with each other and with the cloud, enabling the exchange of data and remote control.

**Augmented intelligence** in IOT technologies refers to the use of AI algorithms to improve the performance of connected devices. Augmented intelligence enables machines to analyze data, learn from past experiences and make decisions with minimal or no human intervention.

This can be used to automate mundane tasks, reduce errors and increase efficiency. It also allows for more predictive and proactive maintenance of connected devices, helping to reduce downtime and improve customer service.

**Standards** are intended to provide a common framework for the development and deployment of the technologies.

Hence Option 2 is correct.



**Question 9** View this Question Online >

**Comprehension:**

Read the following paragraph and answer the five questions that follow:



The internet of things (IOTs) and data analytics are the most significant emerging technologies in recent years that have a disruptive and transformational effect to every industry around the world. The IOT is a technology digitizing the physical world and is a prominent driver to the fourth industrial revolution (IR) that will have the impacts across the business and industry continuum around the world. Business executives and informed citizens are positively anticipating of the fourth IR and digital revolution with low impacts on employments. Applying IOT in to realm of our lives opens-up a host of new opportunities and challenges for consumers, enterprise and Government, IOT products and services enable improvements in productivity and time to market and create

IOT products and services enable improvements in productivity and time to market and create thousands of businesses and millions of jobs. Our lives are improved but at the cost of higher energy consumption that directly impacts our environment.

Which of the following is most commonly used IOT standards for Medium Access Control (MAC)

1. IEEE 802.15.4
2. IEEE 802.11ah
3. IEEE 2413
4. IEEE 11073

**Answer** (Detailed Solution Below)

Option 1 : IEEE 802.15.4

**Concepts on IOT Question 9 Detailed Solution**

- The most commonly used IOT standards for Medium Access Control (MAC) are **IEEE 802.15.4**.
- IEEE 802.15.4 is the most commonly used IoT standard for the MAC layer because it provides low-power, low-cost, and low data rate solutions.
- It is optimized for low-cost, low-power devices and networks, which makes it ideal for Internet of Things (IoT) applications such as smart home products, home automation, industrial automation, and medical devices.
- It also supports a variety of topologies, including star, mesh, and cluster tree.
- Additionally, IEEE 802.15.4 is compatible with other IEEE standards, allowing for easy integration into existing networks.

Question 10

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**Comprehension:**

Read the following paragraph and answer the five questions that follow:

The internet of things (IOTs) and data analytics are the most significant emerging technologies in recent years that have a disruptive and transformational effect to every industry around the world. The IOT is a technology digitizing the physical world and is a prominent driver to the fourth industrial revolution (IR) that will have the impacts across the business and industry continuum around the world. Business executives and informed citizens are positively anticipating of the fourth IR and digital revolution with low impacts on employments. Applying IOT in to realm of our lives opens-up a host of new opportunities and challenges for consumers, enterprise and Government, IOT products and services enable improvements in productivity and time to market and create thousands of businesses and millions of jobs. Our lives are improved but at the cost of higher energy consumption that directly impacts our environment.

Which of the following is not used as a security protocols

1. MAC 802.15.4
2. 6LOWPAN
3. RPL
4. XMPP

**Answer** (Detailed Solution Below)

Option 4 : XMPP

**Concepts on IOT Question 10 Detailed Solution**

**XMPP** is not used as a security protocol because it is an Extensible Messaging and Presence Protocol, which is used for instant messaging and presence information. It is not designed to provide security features like encryption or authentication.

**MAC 802.15.4** is a security protocol used for communication between two or more devices using a mesh network. It provides a secure way to exchange data between devices in a mesh network.

**6LOWPAN** is a security protocol used for low power wireless networks. It provides a secure way to communicate between devices in a low power wireless network.

**RPL** is a security protocol used for routing between nodes in a network. It provides a secure way to route data between nodes in a network.

Hence option 4 is correct.



**Question 11** View this Question Online >

Which of the given wireless technologies used in IoT, consumes the least amount of power?

1. Zigbee
2. Bluetooth
3. Wi-Fi
4. GSM / CDMA

**Answer** (Detailed Solution Below)

Option 2 : Bluetooth

**Concepts on IOT Question 11 Detailed Solution**

The correct answer is **"option 2".**

**CONCEPT:**

**IoT, which** stands for **Internet Of Things**, refers to the **large** number of **physical devices** that are **connected to the internet.**

Examples of **IoT devices** are **Smart home security systems**, **Connected appliances,** etc.

**Bluetooth** is **low energy**, **short-range communication** & **wireless technology** that consumes the **least amount of power** as compared to other **IoT** technologies.

**Hence, the correct answer is Bluetooth.**



**Question 12:**

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Which of the following is not the concern in Internet of Things?

1. data storage
2. privacy
3. security
4. throughput

**Answer** (Detailed Solution Below)

Option 4 : throughput

**Concepts on IOT Question 12 Detailed Solution**

- The Internet of things (IoT) is a system of interrelated computing devices, mechanical and digital machines provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.
- Data storage, privacy and security are the major concern in IoT
- Throughput is not one of the concerns in IoT.

**Question 13:**

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Which among the following is not true about IoT?

1. IoT uses Micro Controllers
2. IoT is fully safe
3. IoT uses Sensors and Actuators
4. IoT uses wireless technology

**Answer** (Detailed Solution Below)

Option 2 : IoT is fully safe

**Concepts on IOT Question 13 Detailed Solution**

The correct answer is **IoT is fully safe**

## Key Points

**IoT (Internet of Things)** involves connecting various devices and objects to the internet, allowing them to communicate and exchange data.

- **IoT is fully safe:**
  - **This statement is not entirely true.** While IoT offers numerous benefits, including efficiency and convenience, it also introduces **security challenges**.
  - Connecting devices to the internet expands the **potential attack surface**, making them susceptible to **cyber threats**.
  - Security vulnerabilities can arise due to factors such as inadequate encryption, weak authentication mechanisms, and insufficient protection against **unauthorized access**.

**Question 14:**

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Which of the following computing does not depends on Multimedia Computing in IoT?

1. Client Server Computing
2. Fog/EdgeComputing
3. Software Defined Networks for M-IoT Computing
4. Cloud Computing

**Answer** (Detailed Solution Below)

Option 1 : Client Server Computing

**Concepts on IOT Question 14 Detailed Solution**

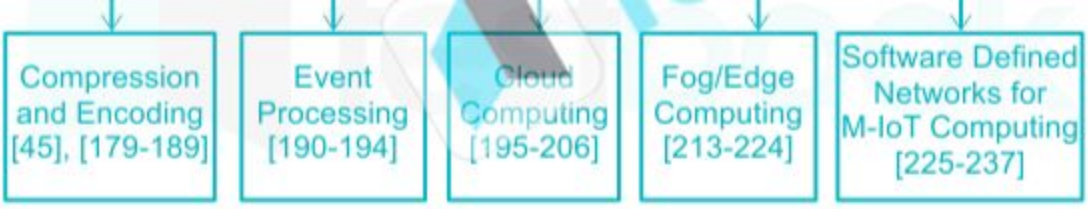
The correct answer is **option 1.**

**Concept:**

**Multimedia Internet of Things (IoT)**

The Multimedia Internet of Things (IoT) is a set of interfaces, protocols, and multimedia-related information representations that enable improved services and applications in both physical and virtual settings based on human-to-device and device-to-device interaction.

Classification of M-IoT computing. The existing work on multimedia computing can be studied based on compression and encoding, event detection and processing, cloud computing, fog/edge computing, and SDNs for computing.




**Explanation:**

Client-Server Computing is not related to multimedia. It denotes a relationship between cooperating programs in an application, composed of clients initiating requests for services and servers providing that function or service.

**Hence the correct answer is** Client-Server Computing.



**Question 15:**

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Which of the following is not types of Voice Services in the IoT?

1. Mono-Directional Voice
2. hybrid-directional voice
3. Voice recognition
4. Bi-directional voice

**Answer** (Detailed Solution Below)

Option 2 : hybrid-directional voice

**Concepts on IOT Question 15 Detailed Solution**

The correct answer is **option 2.**

**Concept:**

In order to deliver voice services in IoT, it is important to consider the different use cases and voice requirements for various market segments.

According to Strategy Analytics, there are three major forms of voice implementation:

**Bi-directional voice:**

Bi-directional voice in IoT is common in human-to-human interaction via a human-machine interface (HMI). The Voice can reach both sides of the membrane.

**Mono-directional voice**:

A number of voice functions in IoT applications will simply require a voice to be transmitted in one direction, or at most the transmission of one audio source to many receiving devices.

**Voice recognition:**

Voice recognition allows a range of functions to be controlled by means of voice on a number of different device types such as computer operating systems, commercial software for computers, mobile devices (smartphones, tablets), cars, call centers, and internet search engines such as Google.

**Hence the correct answer is** hybrid-directional voice.