WEEK 1 2020A

# Assignment 1

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

**Due on 2020-02-12, 23:59 IST.**

1) *1 point*

Which of the following protocol supports reading and writing of time-series data using XML serialization?

a. CoAP
b. MQTT
c. XMPP
d. IEEE 1888

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*d.*

2) *1 point*

Which of the following enables IoT networks to bring together massive number of objects?

a. Dynamic Nature
b. Connectivity
c. Intelligence
d. Enormous Scale

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*b.*

3) *1 point*

Which of the following Interface is related to CoRE?

a. Resource Interface
b. Lookup Interface
c. Both a. and b.
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*c.*

4) *1 point*

A client with limited buffer size and sensitive to packet loss prefers ……..?

a. QoS-0
b. QoS-1
c. QoS-2
d. Both b) and c)

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*c.*

5) *1 point*

Which of the following statement(s) is/are true for CoAP protocol?

I) Uses GET message requests to retrieve subscription.
II) Uses PUSH message requests to create subscription.
III) Uses PUT message requests to create subscription

a. Only I
b. Only II
c. I and II
d. I and III

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*d.*

6) *1 point*

Which of the following network topologies are supported by the IEEE 802.15.4 standard?

a. Star and Mesh
b. Star and Peer-to-Peer
c. Mesh and Peer-to-Peer
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*b.*

7) *1 point*

What is the operating frequency range for 6LoWPAN?

a. 902–929 MHz
b. 2400–2483.5 MHz
c. Both (a) and (b)
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*c.*

8) *1 point*

Which access method is implemented in WirelessHART?

a. FDMA
b. TDMA
c. CDMA
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*b.*

9) *1 point*

What are the network topologies supported by a wireless HART network?

a. Star
b. Mesh
c. Both (a) and (b)
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:

10) *1 point*

What is the network topology of Z-wave network?

a. Ring
b. Bus
c. Mesh
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*c.*

11)

What is the primary application area of ISA 100.11a?

a. Home automation and monitoring
b. Office Automation and monitoring
c. Large scale industrial automation and monitoring
d. All the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*c.*

12) *1 point*

What is the maximum number of devices supported by a Bluetooth device?

a. 232
b. 7
c. Both (a) and (b)
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

13) *1 point*

Which of the following do not contribute in routing in a Zigbee network?

a. Coordinator
b. End Device
c. Controller
d. Router

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*b.*

14) *1 point*

Which of the following resource utilization QoS policy limits amount of message buffering?

a. Resource Limits Policy
b. Deadline Policy
c. Time Filter Policy
d. Both a) and b)

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*a.*

15) *1 point*

Among the following, which is an actuator?

a. Microphone
b. Speaker
c. Both (a) and (b)
d. None of the above

- a.
- b.
- c.
- d.

No, the answer is incorrect.
Score: 0

Accepted Answers:
*c.*

WEEK 1 2021A

# Week 1 Assignment 1

Your last recorded submission was on 2021-01-18, 19:57 IST

Due date: 2021-02-03, 23:59 IST.

1) Which static characteristic of a sensor indicates the correctness of the output? *1 point*

a. Range
b. Linearity
c. Accuracy
d. Resolution

○ (a)
○ (b)
◉ (c)
○ (d)

2) What is the frequency range in which 6LoWPAN works worldwide? *1 point*

a. 2400 - 2483.5 MHz
b. 2300 - 2345 MHz
c. 2400 - 2483.5 KHz
d. 2400 - 2583.5 MHz

◉ (a)
○ (b)
○ (c)
○ (d)

3) How are the obstructions bypassed in Z-Wave? *1 point*

a. Healing
b. Relieving
c. Mitigation
d. Aggravation

◉ (a)
○ (b)
○ (c)
○ (d)

4) Which datalink layer routing scheme uses link layer address to forward packets? *1 point*

a. Route-over
b. Route-under
c. Mesh-over
d. Mesh-under

○ (a)
○ (b)
○ (c)
◉ (d)

5) How many routers, end-devices, and coordinators are present in star topology applying Zigbee protocol? *1 point*

a. 0, 0, 2
b. 1, 0, 2
c. 2, 0, 1
d. 0, 0/more, 1

○ (a)
○ (b)
○ (c)
◉ (d)

6) Which data identification method is used by IEEE 1888 protocol? *1 point*

a. Universal resource identifier
b. Ubiquitous resource identification
c. Unique resource identifier
d. Unique resource identification

◉ (a)
○ (b)
○ (c)
○ (d)

7) Which IETF IP based solution helps in the integration of IoT devices from network to service level? *1 point*

a. CORE
b. ROLL
c. 6LoWPAN
d. None of the above

◉ (a)
○ (b)
○ (c)
○ (d)

8) What variation does a LDR sensor shows with the change in the intensity of light? *1 point*

a. Continuous variation in reactance
b. Continuous variation in resistance
c. Continuous variation in permeance
d. Continuous variation in capacitance

○ (a)
◉ (b)
○ (c)
○ (d)

9) When are messages routed through different nodes in Z-wave protocol? *1 point*

a. Obstruction due to household appliances
b. Obstacle due to road blocks
c. Dead-spot of antenna
d. None of the above

◉ (a)
○ (b)
○ (c)
○ (d)

10) In which form data is stored in RFID tags? *1 point*

a. Digitally encoded form
b. Analog format
c. Barcode format
d. Non-encoded form

◉ (a)
○ (b)
○ (c)
○ (d)

11) Mention some characteristics of IoT devices *1 point*

a. Low processing power
b. Small in size
c. Energy constrained in nature
d. All of the above

○ (a)
○ (b)
○ (c)
◉ (d)

12) How time filter QoS policy avoids buffer overflow? *1 point*

a. Controlling the data sampling rate
b. Controlling the bandwidth
c. Controlling the processing power
d. Controlling the storage space

◉ (a)
○ (b)
○ (c)
○ (d)

13) On which communication protocol XMPP is based? *1 point*

a. Extensive Markup Language
b. Extensive Mark Language
c. Extensive Marker Language
d. Extensive Markerless Language

◉ (a)
○ (b)
○ (c)
○ (d)

14) Which modulation technique is used in Wireless HART? *1 point*

a. Offset Quadrature Phase Shift Keying
b. Onset Quadrature Phase Shift Keying
c. Quadrature Phase Shift Keying
d. Inset Quadrature Phase Shift Keying

◉ (a)

15) Which IoT protocol works on Request/response framework? *1 point*

a. CoAP
b. XMPP
c. AMQP
d. IEEE 1888

◉ (a)
○ (b)
○ (c)
○ (d)

WEEK 1 2021B

# Week 1 : Assignment 1

Assignment not submitted

Due date: 2021-08-11, 23:59

1) 1 p

What are the forms of energy that are converted by an Antenna as a transducer?

a. Electromagnetic energy, electrical signal
b. Electrical signal, mechanical strain
c. Both a and b
d. None of the above

(a)
(b)
(c)
(d)

2) 1 p

Which of the following sensors is/are passive in nature?

a. Radar sensor
b. Temperature sensor
c. Altimeter
d. All of the above

(a)
(b)
(c)
(d)

3) 1 p

_____ sensors provide a continuous function as output in response to an input.

a. Active
b. Passive
c. Analog
d. Digital

(a)
(b)
(c)
(d)

4) 1 p

Which of the following standards is/are used in Wireless Personal Area Network (WPAN)?

a. IEEE 802.15.4
b. IEEE 504.18.2
c. IEEE 802.15.1
d. All of the above

(a)
(b)
(c)
(d)

5) A Zigbee can operate on how many frequencies? 1 p

a. 7
b. 16
c. 3
d. 5

(a)
(b)
(c)
(d)

6) What is the size of a Zigbee data packet? 1 p

a. 264 bits
b. 24 bits
c. 128 bytes
d. 104 bytes

(a)
(b)
(c)
(d)

7) Which of the following Zigbee devices do not contribute in routing? 1 p

a. Coordinator
b. End device
c. Router
d. None of the above

(a)
(b)
(c)
(d)

8) What is the method used by 6LowPAN for encapsulating a whole IPv6 packet into IEEE 802.15.4 frame? 1 p

a. Fragmentation
b. Adaptation
c. Numbering
d. Slicing

(a)
(b)
(c)
(d)

9) What is the modulation technique used in wireless HART? 1 p

a. BPSK
b. OQPSK
c. KPSK
d. DPSK

- (a)
- (b)
- (c)
- (d)

10) Which of the following is/are QoS policy/policies for IoT networks? 1 p

a. Data delivery
b. Data availability
c. Data timeliness
d. All of the above

- (a)
- (b)
- (c)
- (d)

11) What does MQTT stand for? 1 p

a. Message Queue Telemetry Transport
b. Message Queue Telemetry Transmission
c. Message Queue Telecom Transport
d. Master Queue Telemetry Transport

- (a)
- (b)
- (c)
- (d)

12) How many types of messages are defined by CoAP? 1 p

a. 3
b. 5
c. 4
d. 2

- (a)
- (b)
- (c)
- (d)

13) Which of the following supports Publish/Subscribe messaging framework on top of TCP protocol

1 p

a. MQTT
b. CoAP
c. XMPP
d. All of the above

- (a)
- (b)
- (c)
- (d)

14) How many types of message delivery guarantee services are provided by AMQP?

1 p

a. 1
b. 2
c. 3
d. 0

- (a)
- (b)
- (c)
- (d)

15) DDS RTPS Supports Publish/Subscribe framework and on top of UDP transport layer protocol.

1 p

a. True
b. False

- (a)
- (b)

WEEK 1 2022A

# Week 1 : Assignment 1

Assignment not submitted

Due date: 2022-02-09, 23:59 IST.

1) A strain gauge converts _____ to _____. *1 point*

- (a) Electrical energy, strain
- (b) Strain, electrical energy
- (c)Strain, light energy
- (d)Light energy, strain

2) Temperature sensor is a type of _____ sensor. *1 point*

- (a)Vector
- (b)Scalar
- (c)Both (a) and (b)
- (d)None of the above

3) Solenoid is a type of _____. *1 point*

- (a)Actuator
- (b)Digital sensor
- (c)Analog sensor
- (d)None of the above

4) A typical accelerometer is a type of _____. *1 point*

- (a)Actuator
- (b)Passive Sensor
- (c)Active Sensor
- (d)None of the above

5) Which of the following is not a communication protocol for IoT? *1 point*

- (a)Zigbee
- (b)Wireless HART
- (c)ISA 100
- (d)Y-Wave

6) Which of the following topologies is supported by WirelessHART? ***1 point***

- (a)Star
- (b)Mesh
- (c)Both (a) and (b)
- (d)None of the above

7) Which of the following is not a type of node defined in the Zigbee protocol? ***1 point***

- (a)Switch
- (b)Coordinators
- (c)End devices
- (d)Routers

8) Z-Wave is a simpler and cheaper alternative to _____ for small to medium range connectivity. ***1 point***

- (a)ISA 100
- (b)6LoWPAN
- (c)Wireless Hart
- (d)Zigbee

9) Which of the following is used in ISA 100.11a for resource sharing and collision avoidance? ***1 point***

- (a)CDMA/CSMA
- (b)TDMA/CSMA
- (c)TDMA/CDMA
- (d)None of the above

10) Class 3 radios in Bluetooth have an operating range of _____ meter(s). ***1 point***

- (a)100
- (b)10
- (c)1
- (d)0.1

11) Which of the following is true for networks of IoT devices? **1 point**

- (a)Low throughput, high packet loss
- (b)High throughput, low packet loss
- (c)High throughput, high packet loss
- (d)Low throughput, Low packet loss

12) CoRE framework views sensors and actuators as _____ resources. **1 point**

- (a)Energy
- (b)Data
- (c)Web
- (d)None of the above

13) QoS level-1 in MQTT is also known as _____ delivery. **1 point**

- (a)At most once
- (b)At least once
- (c)Exactly once
- (d)None of the above

14) Which of the following is not a type of CoAP message? **1 point**

- (a)CON
- (b)NON
- (c)NOC
- (d)RST

15) Which of the following is true for the traditional XMPP protocol? **1 point**

- (a)It is a centralized protocol.
- (b)It does not support interoperability between heterogeneous networks.
- (c)It works on top of UDP.
- (d)It is a decentralized protocol.

WEEK 1 2022B

# Week 1 : Assignment 1

Assignment not submitted

Due date: 2022-08-10, 23:59 IST.

1) Which of the following is/are the example(s) of a transducer? *1 point*

a. Strain gauge
b. Microphone
c. Speaker
d. All of the above

- ○ a
- ○ b
- ○ c
- ◉ d

2) Which of the following best describes the accuracy characteristic of a sensor? *1 point*

a. The highest and the lowest value that a sensor can sense
b. The degree of correctness or closeness with which a sensor can quantify a physical phenomenon.
c. Both (a) and (b)
d. None of the above

- ○ a
- ◉ b
- ○ c
- ○ d

3) The ratio of incremental change in the response of the system with respect to incremental change in input parameter is known as- *1 point*

a. Linearity
b. Sensitivity
c. Repeatability
d. Drift

- ○ a
- ◉ b
- ○ c
- ○ d

4) A sensor which is not capable of sensing any input independently is categorized as a - *1 point*

a. Dumb Sensor
b. Passive Sensor
c. Active Sensor
d. None of the above

- ○ a
- ◉ b
- ○ c
- ○ d

5) LDR is a type of _____. *1 point*

a. Actuator
b. Digital sensor
c. Analog sensor
d. None of the above

- ○ a
- ○ b
- ◉ c
- ○ d

6) Which of the following topologies is/are supported by the Zigbee protocol? *1 point*

a. Star
b. Mesh
c. Both (a) and (b)
d. None of the above

- ○ a
- ○ b
- ◉ c
- ○ d

7) What is a vector sensor? *1 point*

a. A sensor whose response is a function of magnitude of the input parameter only.
b. A sensor whose response depends on the magnitude of the direction and orientation of the input parameter.
c. Both a and b
d. None of the above

- ○ a
- ◉ b
- ○ c
- ○ d

8) What does WPAN stand for in the context of IEEE communication protocols? *1 point*

a. Wireless Power Attention Network
b. Wireless Power Aggregator Network
c. Wireless Personal Area Network
d. None of the above

- ○ a
- ○ b
- ◉ c
- ○ d

10) How many types of nodes are supported in the Zigbee protocol? *1 point*

a. 3
b. 2
c. 1
d. 0

- (a)
- (b)
- (c)
- (d)

11) Which of the following Zigbee node(s) do(es) not contribute to routing in the Zigbee network? *1 point*

a. Coordinator
b. Router
c. End device
d. Both a and c

- (a)
- (b)
- (c)
- (d)

12) What is the maximum number of nodes supported in a Z-wave network? *1 point*

a. 5
b. 500
c. 232
d. 254

- (a)
- (b)
- (c)
- (d)

13) Which of the following is/are not QoS policies of an IoT network? *1 point*

a. Data delivery
b. Data timeliness
c. Data optimization
d. Resource utilization

- (a)
- (b)
- (c)
- (d)

14) Which of the following statements is true for MQTT? *1 point*

a. Works on Publish/Subscribe framework on top of TCP/IP architecture
b. Introduced by IBM and standardized by OASIS in 2018
c. Supports 5-level of QoS
d. Unreliable and expensive

- (a) a
- ( ) b
- ( ) c
- ( ) d

15) _____ works on the Request/Response framework based on the UDP architecture, including Datagram Transport Layer Security (DTLS) secure. *1 point*

a. MQTT
b. CoAP.
c. Zigbee
d. LoRA.

- ( ) a
- (b) b
- ( ) c
- ( ) d

WEEK 1 2023A

# Assignment 01

Assignment not submitted

Due date: 2023-02-08, 23:59 IST.

1) In the context of static characteristics of a sensor, which of the following signifies resolution? *1 point*

- (a) It provides the smallest change in the input that a sensor is capable of Sensing
- (b) It is the difference between the standard value and the value produced by Sensor
- (c) It is the deviation of sensor value curve from a particular straight line
- (d) It represents the correctness of the output compared to a superior system

2) What is the general operating voltage range of commercial sensors which are available for circuit enthusiasts and hobbyists? *1 point*

- (a) 3.3 to 5 V
- (b) 4.5 to 8
- (c) 3.5 to 12 V
- (d) 3.3 to 8 V

3) Which of the following actuators produce linear displacement? *1 point*

- (a) Manual Linear Actuator
- (b) Fluid Power Linear Actuator
- (c) Electric Linear Actuator
- (d) All of the above

4) IEEE 802.15.4 uses _____ protocol for data transmission. *1 point*

- (a) ALOHA
- (b) CSMA-CA
- (c) CSMA-CD
- (d) None of the above

5) Which of the following is not an operating frequency of ZigBee? *1 point*

- (a) 950 KHz
- (b) 868 MHz
- (c) 902-928 MHz
- (d) 2.4 GHz

6) What is/are the role(s) of adaptation layer in 6LoWPAN? *1 point*

- (a) Packet fragmentation & packet reassembly
- (b) Compression of header
- (c) Routing of data link layer
- (d) All the above

7) Maximum payload allowed in wireless HART is _____ bytes? *1 point*

- (a) 63
- (b) 127
- (c) 255
- (d) 512

8) Radio dead-spots can be bypassed using a process called _____. *1 point*

- (a) Healing
- (b) Multi-hop
- (c) Adaptation
- (d) Reduction

9) In which application domain does ISA 100.11a is primarily used? *1 point*

- (a) Home/Office Automation
- (b) System for Smart Security and Surveillance
- (c) Systems for Smart Energy Management
- (d) Automation in large scale complex industries

10) Which wireless communication technology is based on Ad-hoc Piconets? *1 point*

- (a) Wireless HART
- (b) ZigBee
- (c) Bluetooth
- (d) Z-Wave

11) What does the abbreviation, NFC, stands for? *1 point*

- (a) New Frequency communication
- (b) Near Frequency communication
- (c) Near Field communication
- (d) Non-Friendly communication

12) Which of the following work groups extend the integration of the IoT devices from network to service level. *1 point*

- (a) 6LoWPAN
- (b) ROLL
- (c) CoRE
- (d) None of the above

13) QoS policies for IoT Network includes _____. *1 point*

- (a) Resource utilization
- (b) Data timeliness
- (c) Data availability
- (d) All of the above

14) Which IoT networking protocol supports caching capabilities to improve the response time and reduce bandwidth consumption? *1 point*

- (a) MQTT
- (b) XMPP
- (c) CoAP
- (d) AMQP

15) Which IoT networking protocol is used in the Military? *1 point*

- (a) DDS RTPS
- (b) IEEE 1888
- (c) AMCP
- (d) CoAP

WEEK 1 2023B

# Week 1 : Assignment 1

Your last recorded submission was on 2023-08-01, 22:09 IST

Due date: 2023-08-09, 23:59 IST.

1) Which of the following is/are not a type of transducer? *1 point*

a. Speaker
b. Microphone
c. Solar panel
d. Connecting wire

- ○ a.
- ○ b.
- ○ c.
- ◉ d.

2) "Sensor is sensitive to only the measured property. It is insensitive to any other property besides what it is designed to detect." True or false? *1 point*

a. True
b. False

- ◉ a.
- ○ b.

3) "_____ sensors produce an output proportional to the magnitude of the quantity being measured." Fill in the blank. *1 point*

a. Scalar
b. Vector
c. Analog
d. Digital

- ◉ a.
- ○ b.
- ○ c.
- ○ d.

4) What is the resolution of a sensor? *1 point*

a. It provides the difference between the measured value and the actual value of the sensing parameter.
b. It provides the smallest change in the input that a sensor is capable of sensing.
c. It provides the incremental changes produced in response by the system.
d. All of the above.

- ○ a.
- ◉ b.
- ○ c.

5) 1 point

_____ is a part of the system that deals with the control actions required in the system.

a. Sensor
b. Actuator
c. Manager
d. None of the above

○ a.
◉ b.
○ c.
○ d.

6) 1 point

What is the function of an electric rotary actuator?

a. Converts mechanical energy into electrical energy
b. Converts analog signals to digital signals
c. Converts electrical energy into rotational motion
d. All of the above

○ a.
○ b.
◉ c.
○ d.

7) 1 point

Which of the following communication standards provide a framework for WPAN ?

a. 6LowPan
b. IEEE 802.15.4
c. Z- wave
d. Wireless HART

○ a.
◉ b.
○ c.
○ d.

8) 1 point

The IEEE 802.15.4 standard uses DSSS scheme for data transmission. What does DSSS stand for?

a. Double Spread Spectrum Scheme
b. Direct-Sequence Spread Spectrum
c. Discrete-Sequence Spread Spectrum
d. Dynamic-Sequence Spread Spectrum

○ a.
◉ b.
○ c.
○ d.

1:05 / 2:05

9) 1 point

When does Zigbee uses the OQPSK modulation scheme?

a. When the operating frequency is less the 2.4 GHz
b. When the operating frequency is more than 2.4 GHz
c. When the operating frequency is 2.4 GHz
d. All of the above

○ a.
○ b.
◉ c.
○ d.

10) Which of the following statements is true about the end devices in Zigbee protocol? *1 point*

a. End devices do not participate in data routing
b. End device manages and controls the network
c. End devices contribute in data relaying
d. There can be only one end device in a Zigbee network

◉ a.
○ b.
○ c.
○ d.

11) What is the maximum packet size supported by IEEE 802.15.4 standard? *1 point*

a. 1280 bytes
b. 125 bytes
c. 127 bytes
d. 256 bytes

○ a.
○ b.
◉ c.
○ d.

12) Z-wave uses _____ network topology. Fill in the blank. *1 point*

a. Bus
b. Star
c. Tree
d. Mesh

○ a.
○ b.
○ c.
◉ d.

13) Passive tags in RFID are powered by their own power source. True or False? *1 point*

a. True
b. False

○ a.
◉ b.

14) What is the full form of IETF in the context of the Internet? *1 point*

a. Internet Enforced Task Force
b. Internet for Engineers Task Force
c. Internet Engineers Task Force
d. Internet Engineering Task Force

○ a.
○ b.
○ c.
◉ d.


15) MQTT works on _____framework on top of TCP/IP. Fill in the blank. *1 point*

a. Push/Pull
b. Publish/Subscribe
c. Client/Server
d. None of the above

○ a.
◉ b.

1:54 / 2:05

WEEK 1 2024A

# Week 1 : Assignment 1

Assignment not submitted

Due date: 2024-02-07, 23:59 IST.

1) What is a transducer? *1 point*

a. A device that converts energy from one form to another
b. A type of sensor that detects only energy
c. A digital communication device
d. A part of a computer processor

- (•) a.
- ( ) b.
- ( ) c.
- ( ) d.

2) What does sensor accuracy refer to? *1 point*

a. The range of the sensor
b. The smallest detectable input change
c. The correctness of the output compared to a standard value
d. The sensor's response time

- ( ) a.
- ( ) b.
- (•) c.
- ( ) d.

3) What is an active sensor? *1 point*

a. A sensor that can only sense physical changes
b. A sensor that operates without an external power source
c. A sensor that independently senses the input
d. A sensor that operates without any energy consumption

- ( ) a.
- ( ) b.
- (•) c.
- ( ) d.

4) What does 'Actuator' primarily refer to in IIoT systems? *1 point*

a. A device that stores data
b. A device that processes information
c. A device that converts signals into physical action
d. A device that enhances signal strength

- ( ) a.
- ( ) b.
- (•) c.
- ( ) d.

5) Zigbee technology is popular for _____. *1 point*

a. Long-range communications
b. High power consumption
c. Low-cost, low-power wireless mesh networks
d. High data rate transfer

○ a.
○ b.
◉ c.
○ d.

6) Which of the following is true about 6LoWPAN? *1 point*

a. It is used for high-power industrial networks
b. It enables IPv6 packets over low-power wireless networks
c. It focuses on high-speed ethernet
d. It's a standard for satellite communications

○ a.
◉ b.
○ c.
○ d.

7) Near Field Communication (NFC) is typically used for: *1 point*

a. Long-range satellite communications
b. High-power industrial networks
c. Short-range wireless interaction between electronic devices
d. Storing large amounts of data

○ a.
○ b.
◉ c.
○ d.

8) Which of the following actuators work on the principle of compression and decompression? *1 point*

a. Hydraulic Actuators
b. Thermal Actuators
c. Electric Actuators
d. Mechanical Actuators

◉ a.
○ b.
○ c.
○ d.

9) ISA 100.11a is significant in IIoT because it _____. *1 point*

a. Provides high-speed internet connectivity
b. Focuses on wireless network technology for industrial automation
c. Is used for long-range satellite communications
d. Enhances Bluetooth signal strength

○ a.
◉ b.
○ c.
○ d.

10) What is the primary function of IEEE 802.15.4 in IoT? *1 point*

a. High-speed data transmission
b. Providing security algorithms
c. Establishing low-rate wireless personal area networks
d. Data storage and retrieval

○ a.
○ b.
◉ c.
○ d.

11) Z-Wave technology is best suited for _____. *1 point*

a. Industrial communication
b. Home automation
c. Satellite communication
d. High-speed internet

○ a.
◉ b.
○ c.
○ d.

12) What is the maximum data rate possible in Wireless HART? *1 point*

a. 2500 b/s
b. 2.5 mb/s
c. 250 kb/s
d. None of the above

○ a.
○ b.
◉ c.
○ d.

13) QoS 2 in MQTT is also known as _____. *1 point*

a. At most once
b. At least once
c. Exactly once
d. None of the above

- ○ a.
- ○ b.
- ◉ c.
- ○ d.

14) CoAP works on Request/Response framework based on the _____ architecture. *1 point*

a. UDP
b. TCP
c. SCTP
d. DCCP

- ◉ a.
- ○ b.
- ○ c.
- ○ d.

15) Infra-red sensor is an example of _____. *1 point*

a. Acoustic Sensor
b. Mechanical Sensor
c. Electrical Sensor
d. Optical Sensor

- ○ a.
- ○ b.
- ○ c.
- ◉ d.