

WEEK 6 2020A

Assignment 6

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

Due on 2020-03-11, 23:59 IST.

1) Why do we need IIoT?
1 point

- a. Detecting machine failure
- b. Improving safety
- c. Preventing machine failure
- d. All of the above

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

No, the answer is incorrect.
Score: 0

Accepted Answers:
d.

2) An IoT device consists of _____.
1 point

- a. Sensor
- b. Wireless communication module
- c. Processor
- d. All of the above

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

No, the answer is incorrect.
Score: 0

Accepted Answers:
d.

3) What is the suitable peripheral interfacing protocol of accelerometer ADXL335 sensor?
1 point

- a. UART
- b. I2C
- c. ADC
- d. None of the above

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

No, the answer is incorrect.
Score: 0

Accepted Answers:
c.

4) Gas sensing in calorimetric method is based on
1 point

- a. Fluorescence properties of the sensing material
- b. Change in temperature at the catalyst surface
- c. Change in the resistance of the sensing material
- d. Both b and c

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

No, the answer is incorrect.
Score: 0

Accepted Answers:
b.

5)

0 points

Which of the following is not true about the Chemi-resistive gas sensor?

- a. In n-type sensor the resistance decreases when exposed to reducing gas
- b. In n-type sensor the resistance increases when exposed to reducing gas
- c. In p-type sensor the resistance decreases when exposed to reducing gas
- d. Both b & c are true

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

6)

1 point

What do you understand by stability of the sensor?

- a. If a sensor reaches its stable output in time constant period
- b. Robustness in the gas sensing property of gas sensor in a long time period when exposed to hostile ambience.
- c. Slow aging
- d. Stability is associated with aging of sensor

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

7)

1 point

What is the data rate for Ethernet/IP protocol?

- a. 1000 bytes
- b. 1200 bytes
- c. 1500 bytes
- d. All of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

8)

1 point

Which of the following is considered as the root for Profinet?

- a. Ethernet/IP
- b. EtherCat
- c. Both (a) and (b)
- d. None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

9)

1 point

- Which of the following is characteristic for Time-Sensitive Networking (TSN)?
- a. Time-aware
 - b. Time-schedule
 - c. Both (a) and (b)
 - d. None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

10)

0 points

- Which of the following topology is supported by Profibus?
- a. Ring
 - b. Star
 - c. Bus
 - d. All of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

11)

1 point

- Which of the following is a bit-oriented system?
- a. CC-Link/LT
 - b. CC-Link IE
 - c. CC Link Safety
 - d. None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

12) Which encoding scheme is followed by DeviceNet while signal transmission? 1 point

- a. Return to Zero
- b. Non return to Zero
- c. No encoding
- d. None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

13) Which of the following modulating technology is considered by Digital Subscriber Line (DSL)? 1 point

- a. Discrete Multitone Technology
- b. Carrierless Amplitude Modulation
- c. Multiple Virtual Line
- d. All of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

14) A fault has been discovered in a manufacturing process. The system has been taken offline and a system engineer has been tasked with fixing the problem. What type of analytics should he run? 1 point

- a. Baseline analytics
- b. Prognostic analytics
- c. Diagnostic analytics
- d. None of the above

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

15) Improvement of business value due to IIoT analytics stems from: 1 point

- a. Data-driven insights
- b. Better connectivity
- c. Real-time processing
- d. Both a) and c)

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

No, the answer is incorrect.

Score: 0

Accepted Answers:

d.

Week 6 Assignment 6

Assignment not submitted

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

1)

1 point

Which of the following layer is at the bottom of the layer wise architecture of IIoT?

- (a) Data center cloud
- (b) Edge and Gateway
- (c) Sensing and Actuation
- (d) None of the above

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

2)

1 point

Which of the following sensor(s) is used for monitoring temperature?

- (a) LM 35
- (b) Servo
- (c) PIR sensor
- (d) All of the above

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

3) What is Magnetostrictive sensor used for?

1 point

- (a) Temperature monitoring
- (b) Time-varying stresses and strains
- (c) Gas concentration
- (d) All of the above

- (a)
- (b)

4) Chemi-resistive gas sensor operates on - 1 point

- (a) Thermal energy
- (b) Atmospheric pressure
- (c) Both a and b
- (d) None of the above

(a)

5) MOS gas sensor works on the principle of - 1 point

- (a) Change in resistance with exposure to gas
- (b) Change in vibration when exposed to gas
- (c) Reflection of ultrasonic sound from gas particles
- (d) None of the above

(a)

6) What is meant by reversibility property of a gas sensor ? 1 point

- (a) Ability to go back to base resistance value when gas exposure is stopped
- (b) Ability to reverse the gas concentration in the surrounding
- (c) Both a and b
- (d) None of the above

(a)

7) Which of the following is not a requirement for industrial communication? 1 point

- (a) High latency
- (b) Real-time
- (c) Low jitter
- (d) All of the above

(a)

8) What is the function of Serial line sub network in ModBus? *1 point*

- (a) Acts as bridge or gateway
- (b) Grants link between client-server
- (c) Both a and b
- (d) None of the above

(a)
 (b)

9) Which of the following is not a variant of Profibus? *1 point*

- (a) Profibus FMS
- (b) Profibus DP
- (c) Profibus PD
- (d) Profibus PA

(a)
 (b)
 (c)

10) Which of the following standards is used by Profibus? *1 point*

- (a) IEEE 802.4
- (b) IEC 61158
- (c) IEC 612348
- (d) IEEE 804.8

(a)
 (b)

11) *1 point*

Which of the following error detection method is used in EtherCAT?

- (a) CRC checksum
- (b) Hamming code
- (c) Parity check
- (d) None of the above

(a)

12)

1 point

Which of the following technologies act as the enablers for tactile internet?

- (a) SDN
- (b) NFV
- (c) MEC
- (d) All of the above

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

13)

1 point

What is the primary objective of Industry 4.0?

- (a) Powerful and pervasive connectivity between machines, people, and objects
- (b) Power computation capabilities to machines
- (c) Electrification of manufacturing and production units
- (d) None of the above

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

14) What are the objectives of Small cell deployment?

1 point

- (a) Improving energy efficiency
- (b) Decreasing dead zones
- (c) Removing burden on backhaul networks
- (d) All of the above

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

15) Which of the network topologies is used by Profibus?

1 point

- (a) Star
- (b) Bus
- (c) Mesh
- (d) Ring

- (a)
- (b)

Week 6 : Assignment 6

Assignment not submitted

Due date: 2021-09-08, 23:59 IST.

1) Which of the following is/are considered as the feature(s) of IIoT?

- a. Detection of machine failure
- b. Detection of products failure
- c. Smart machines
- d. All of the above

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

2) _____ is/are the benefit(s) of using sensors in Industries.

- a. Real-time monitoring
- b. Reduced productivity
- c. Decreased visibility
- d. All of the above

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

3) GAS sensor MQ-2 provides gas reading in _____.

- a. Analog voltage
- b. Digital Voltage
- c. Both (a) and (b)
- d. None of the above

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

4) Gas Sensing systems play a vital role in monitoring the concentration of _____

- a. Flammable gas
- b. Non-toxic gas
- c. Breathable gas
- d. Both (b) and (c)

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

5) In MOS gas sensors, the resistance of n-type sensors and p-type sensors _____ respectively, in contrast to the baseline resistance when exposed to a reducing gas.

- a. Decreases and Increases
- b. Increases and Decreases
- c. Both decreases
- d. None of the above

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

6) Which of the following is/are the main component(s) of a generic gas sensing system?

- a. Sensing module
- b. Analog temperature controller
- c. Processor
- d. All of the above

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

7) Which of the following is/are the main requirement(s) of Industrial communications?

- a. High duty-cycle
- b. High Jitter
- c. Real-time
- d. All of the above

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

8) How does EtherCat exchange data?

- a. As learning data objects
- b. As system data objects
- c. As machine data objects
- d. As process data objects

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

9) What is the main topology of Ethernet/IP?

- a. Passive STAR
- b. Active MESH
- c. Active STAR
- d. Passive MESH

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

10) Which of the following is/are not the variant(s) of ProfiBus?

- a. Profibus FMA
- b. Profibus decomposed peripherals
- c. Both (a) and (b)
- d. Profibus process automation

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

11) The concept of CC-link was established by _____.

- a. Cico
- b. Mitsubishi
- c. ICP DAS
- d. None of the above

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

12) Which of the following is/are referred to as the category/categories of DSL?

- a. Asymmetric
- b. Symmetric
- c. Semi-symmetric
- d. Both (a) and (b)

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

13) Which of the following is/are observed as the main factor(s) of Industry 3.0 and 2.0?

- a. Computation and Electrification
- b. Computation and Connectivity
- c. Connectivity and Electrification
- d. Electrification and Mechanization

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

14) What is the range for the middle band observed in the 5G support for Private Network?

- a. >24 GHz
- b. 6-24 GHz
- c. 1-6 GHz
- d. <1 GHz

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

15) What is the maximum tolerable end-to-end latency in Tactile Internet?

- a. 1s
- b. 1ms
- c. 1μs
- d. 0.1ms

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

WEEK 6 2022A

Week 6 : Assignment 6

Assignment not submitted

Due date: 2022-03-09, 23:59 IST.

1) What does a magnetostrictive sensor measure? 1 point

- (a) Time-varying strain in ferromagnetic materials
- (b) Time-varying strain in non ferromagnetic material
- (c) Both of the above
- (d) None of the above

2) In IIoT applications, a pressure sensor is used to measure _____. 1 point

- (a) the atmospheric pressure in different Geographical location
- (b) the pressure in hydraulics systems
- (c) Both (a) and (b)
- (d) None of the above

3) What does a PIR sensor detect? 1 point

- (a) Motion of human body parts
- (b) Pulse
- (c) Blood pressure
- (d) Infrared radiation from human body

4) Which of the following is/are not referred to as the electrical variations of gas sensing methods? 1 point

- (a) Polymer
- (b) Gas chromatograph
- (c) CNT or carbon nanotube
- (d) MOS or Metal Oxide Semiconductors

5) What does VOC stand for?

1 point

- (a) Volatile Organic Compound
- (b) Volatile Organic Communication
- (c) Variable Organic Communication
- (d) Volatile Ontological Compound

6) "If the exposure of the sensor to the target gas is stopped, the sensor resistance can **1 point** return back to its base resistance value" --- which of the following terms represents this characteristic of a generic gas sensor?

- (a) Sensitivity
- (b) Selectivity
- (c) Reversibility
- (d) Stability

7) A generic gas sensing system primarily includes _____.

1 point

- (a) Sensor module
- (b) Processing unit
- (c) Analog temperature controller
- (d) All of the above

8) Which of the following do(es) not refer to the typical communication requirements in **1 point** industries?

- (a) Very high duty-cycle
- (b) Real-time
- (c) Very low latency
- (d) None of the above

9) EtherCAT allows PDO/telegram exchange _____.

1 point

- (a) Among the slave devices
- (b) Between the master and the slave devices
- (c) Among the master devices
- (d) None of the above

10) Which of the following follow(s) IEC 61158 standard?

1 point

- (a) EtherCAT
- (b) Profibus
- (c) Both (a) and (b)
- (d) None of the above

11) MBP is used for transmission and is suitable for hazardous environments. What does "MBP" stand for?

1 point

- (a) Manchester Bus Parity
- (b) Manchester Bit Power
- (c) Manchester Bus Power
- (d) None of the above

12) Which of the following standards is/are followed by CC-Link?

1 point

- (a) IEC 61058
- (b) IEC 61508
- (c) IEC 61580
- (d) None of the above

13) DeviceNet uses _____.

1 point

- (a) CAN
- (b) SAN
- (c) PAN
- (d) MAN

14)

1 point

Match each element in the left column of the table with each element in the right column of the table correctly.

Industry versions	Characteristics
i. 1.0	Electrification
ii. 2.0	Connectivity
iii. 3.0	Mechanization
iv. 4.0	Computation

- (a) ii, iv, iii, i
- (b) ii, iv, i, iii
- (c) iv, ii, i, iii
- (d) ii, i, iv, iii

15) Which of the following is/are not aligned with the ITU service category?

1 point

- (a) eMMB
- (b) uRLLC
- (c) Both (a) and (b)
- (d) None of the above

Week 6 : Assignment 6

Assignment not submitted

Due date: 2022-09-07, 23:59 IST.

1) What are the benefits of sensor usage in Industry? 1 point

- (a) Real-time monitoring
- (b) Operational efficiency
- (c) Both of the above
- (d) None of the above

a
 b
 c
 d

2) The output voltage of LM35 is _____. 1 point

- (a) Linearly proportional to Celsius
- (b) Inversely proportional to Fahrenheit
- (c) Inversely proportional to Celsius
- (d) Inversely proportional to Fahrenheit

a
 b
 c
 d

3) The temperature sensor DS1621 is _____. 1 point

- (a) Digital Sensor
- (b) Analog Sensor
- (c) 10 bits temperature sensor
- (d) None of the above

a
 b
 c
 d

4) Which of the following is/are not referred to as the electrical variations of gas sensing methods? 1 point

- (a) Polymer
- (b) Gas chromatograph
- (c) CNT or carbon nanotube
- (d) MOS or Metal Oxide Semiconductors

a
 b
 c
 d

5) What does VOC stand for? 1 point

- (a) Volatile Organic Compound
- (b) Voratile Organic Communication
- (c) Variable Organic Communication
- (d) Volatile Ontological Compound

a
 b
 c
 d

6) The operating voltage of temperature sensor DS1621 is _____. 1 point

- (a) 2.7 to 5 Volt
- (b) 1.7 to 5 Volt
- (c) 3.7 to 5 Volt
- (d) 2.5 to 5 Volt

a
 b
 c
 d

7) An accelerometer is a type of _____ sensor. 1 point

- (a) Electrical
- (b) Electromechanical
- (c) Electrochemical
- (d) Hydraulic

a
 b
 c
 d

8) The torque sensor _____. 1 point

- (a) Measures rotating torque
- (b) Used to measure the speed of rotation
- (c) Measures different variables such as speed, water level, and gas/water flow
- (d) Both (a) and (b)

a
 b
 c
 d

9)

A gas sensing system plays a vital role for monitoring the concentration of _____.

1 point

- (a) Flammable gases
- (b) Combustible gases
- (c) Toxic gases
- (d) All of the above

a
 b
 c
 d

10)

In n-type sensors MOS gas sensor _____.

1 point

- (a) Resistance decreases with respect to the Baseline resistance when exposed to a reducing gas
- (b) Resistance increases with respect to the Baseline resistance when exposed to a reducing gas
- (c) Resistance remains same with respect to the Baseline resistance when exposed to a reducing gas
- (d) None of the above

a
 b
 c
 d

11)

The objectives of Small Cell deployment is _____.

1 point

- (a) Alleviating burden on backhaul
- (b) Improving energy efficiency
- (c) Decreasing dead zones
- (d) All of the above

a
 b
 c
 d

12)

The characteristics of Tactile Internet are _____.

1 point

- (a) Real-time transmission of touch/sense and actuation
- (b) Provides new facet to human-machine interaction
- (c) Enables haptic communication
- (d) All of the above

a
 b
 c
 d

13) The variants of Profibus are _____.

1 point

- (a) Profibus FMS
- (b) Profibus FSM
- (c) Profibus SP
- (d) Profibus QP

- a
- b
- c
- d

Match each element in the left column of the table with each element in the right column of the table correctly.

Industry versions	Characteristics
i. 1.0	Electrification
ii. 2.0	Connectivity
iii. 3.0	Mechanization
iv. 4.0	Computation

- (a) ii, iv, iii, i
- (b) ii, iv, i, iii
- (c) iv, ii, i, iii
- (d) ii, i, iv, iii

- a
- b

15) The maximum data rate of EtherNet/IP is _____.

1 point

- (a) 1500 bytes per packet
- (b) 2500 bytes per packet
- (c) 1600 bytes per packet
- (d) 1800 bytes per packet

- a
- b
- c
- d

WEEK 6 2023A

Week 06: Assignment 6

Assignment not submitted

Due date: 2023-03-08, 23:59 IST.

- 1) What are the benefits of using sensor in industrial applications? 1 point
- (a) Real-time monitoring
 (b) Improving visibility
 (c) Remote diagnosis
 (d) All of the above
- 2) What is the function of LM 35 sensor? 1 point
- (a) Analog temperature monitoring
 (b) Digital temperature monitoring
 (c) Analog humidity monitoring
 (d) Digital humidity monitoring
- 3) ADXL335 sensor can generate the magnitude and direction of the acceleration. True or false? 1 point
- (a) True
 (b) False
- 4) MQ-2 sensor is used for measuring the concentration of which of the following gases ? 1 point
- (a) Helium, Argon, Neon
 (b) Nitrogen, Hydrogen, Oxygen
 (c) LPG, Propane Hydrogen
 (d) All of the above
- 5) _____ sensor is used to measure time-varying stresses and strains in ferromagnetic materials? 1 point
- (a) Torque
 (b) Acceleration
 (c) Magnetostrictive
 (d) None of the above
- 6) MOS is one of the electrical variations of gas sensing methods. What is the full form of MOS? 1 point
- (a) Metal Oxide Semiconductors
 (b) Metal Oxide Sensing
 (c) Monitoring Olfactory Sensor
 (d) Moisture Onsite Sensing
- 7) What is/are the requirements of industrial communication? 1 point
- (a) Real-time communication
 (b) Low latency
 (c) Low jitter
 (d) All of the above
- 8) Industrial Ethernet is used in scenarios that require _____. 1 point
- (a) Clock synchronization
 (b) Periodic I/O data transfer
 (c) Local Area Network of field devices
 (d) All of the above
- 9) Profinet in industrial communication is based on which of the following technologies? 1 point
- (a) Fieldbus
 (b) Industrial Ethernet
 (c) Profibus
 (d) DeviceNet
- 10) How many active connections or sockets are supported by ModBus-TCP, simultaneously? 1 point
- (a) 10
 (b) 8
 (c) 5
 (d) 254

- 11) Which of the following methods is used by EtherCat for bit error recognition? 1 point
- (a) Hamming code
 - (b) CRC checksum
 - (c) Parity check
 - (d) Binary check
- 12) What is the full form of Profinet? 1 point
- (a) Process Field Network
 - (b) Public Field Network
 - (c) Process Full Network
 - (d) Private Field Networking
- 13) What is the maximum number of subscribers supported by the Interbus? 1 point
- (a) 512
 - (b) 215
 - (c) 125
 - (d) 251
- 14) Select the statement that best describes Tactile Internet. 1 point
- (a) It enables haptic communication
 - (b) It enables real-time transmission of touch, sense and actuation
 - (c) Both a and b
 - (d) None of the above
- 15) What is the frequency spectrum for mmWave communication? 1 point
- (a) 30-300 GHz
 - (b) 30-300 KHz
 - (c) 30-300 MHz
 - (d) 30-300 Hz

WEEK 6 2023B

Week 6 : Assignment 6

Your last recorded submission was on 2023-08-31, 22:47 IST

Due date: 2023-09-06, 23:59 IST.

- 1) Which type of voltage does LM 35 temperature sensor generate? 1 point
- a. Analog
 - b. Digital
 - c. Both analog and digital
 - d. It is unable to generate any voltage
- a.
 - b.
 - c.
 - d.
- 2) Temperature sensor DS1621 is a _____ sensor, which generates _____ bits temperature data. 1 point
- a. analog, 5
 - b. analog, 9
 - c. digital, 5
 - d. digital, 9
- a.
 - b.
 - c.
 - d.

3) Which of the following is the application of Ultrasonic sensor? 1 point

- a. Detects radiations coming from human body in its surrounding area
- b. Distance measurement, pattern matching, color checking, structured lighting, and motion capture
- c. Automatic door open/close, human detection, lift lobby, common staircase, and shopping Mall
- d. Liquid level monitoring of tank, trash level monitoring

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

4) What is the Baseline Resistance of a sensor? 1 point

- a. Resistance of the sensor material in air when not exposed to the target gas
- b. Resistance of the sensor material in air when exposed to the target gas
- c. Resistance of the sensor material when not exposed to the atmosphere
- d. Resistance of the sensor material when exposed to the atmosphere

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

5) Which type of sensor decreases its resistance w.r.t. the baseline resistance when exposed to a reducing gas? 1 point

- a. c-type sensors
- b. p-type sensors
- c. n-type sensors
- d. All the sensor types

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

6) Define the Sensitivity of a gas sensor. 1 point

- a. It is the ability to detect a particular gas in a mixture of different gases.
- b. It is the change in the output signal with respect to unit change in input.
- c. It is characteristic of the sensor which ensures its resistance to return to its base resistance value if exposure to the target gas is stopped.
- d. None of the above

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

7) Which of the following protocol falls under the category of Industrial Ethernet??

1 point

- a. CC-Link
- b. DeviceNet
- c. Time-Sensitive Networking (TSN)
- d. Interbus

a.
 b.
 c.
 d.

8) What are the two units defined in the ModBus-TCP data frame?

1 point

- a. Protocol Data Unit and Application Data Unit
- b. Protocol Data Unit and Communication Data Unit
- c. Communication Data Unit and Application Data Unit
- d. None of the above

a.
 b.
 c.
 d.

9) Which of the following network topology/(ies) is/are not supported by EtherCat?

1 point

- a. tree
- b. hybrid
- c. star
- d. mesh

a.
 b.
 c.
 d.

10) What is the maximum data rate per packet of EtherNet/IP?

1 point

- a. 500 bytes
- b. 100 bytes
- c. 1500 bytes
- d. 2000 bytes

a.
 b.
 c.
 d.

11) What is the full form of Profinet?

1 point

- a. PReplanned Field NETwork
- b. PROcess Figured NETwork
- c. PReplanned Figured NETwork
- d. PROcess Field NETwork

a.
 b.
 c.
 d.

12) Which of the following communication infrastructure is an example of wired connectivity?

1 point

- a. LPWAN
- b. PSTN
- c. IEC-PAS 62601/WIA-PA
- d. ISA 100

a.
 b.
 c.
 d.



13) Which of the following is/are the limitation(s) of satellite communication?

1 point

- a. Launching of satellite in space comes at a higher cost
- b. Propagation delay is more compared to other terrestrial methods
- c. Difficulty in repairs in case of any damage
- d. All of the above

a.
 b.
 c.
 d.



14) What is the frequency spectrum of mmWave for cellular communication?

1 point

- a. 30 – 100 GHz
- b. 30 – 100 MHz
- c. 57 – 64 GHz
- d. 57 – 64 MHz

a.
 b.
 c.
 d.



15) The output voltage of LM 35 temperature sensor is _____ proportional to the Celsius temperature.

1 point

- a. quadratically
- b. exponential
- c. linearly
- d. None of the above

a.
 b.
 c.
 d.



Week 6 : Assignment 6

Assignment not submitted

Due date: 2024-03-01

- 1) Which of the following temperature sensors generates an analog voltage proportional to the temperature?

- a. DS1621
- b. DHT11
- c. DS18B20
- d. LM 35

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



- 2) What are the key components of an IoT Sensing Device?

1 point

- a. Sensor, Processor, Wireless Communication Module, Power Management Unit
- b. Battery, Processor, Universal Serial Bus, Visual Display Unit
- c. Sensor, Compiler, Interpreter, Energy Harvester
- d. None of the above

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

- 3) What kind of sensor is ADXL335?

1 point

- a. Accelerometer
- b. Gyroscope
- c. Magnetometer
- d. Proximity sensor

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

- 4) "MOS gas sensor depend on the thermal energy for its operation which is supplied with a heater." State True or False.

1 point

- a. True
- b. False

- (a)
- (b)

5) Which of the following is not a probable application of Gas Sensors? 1 point

- a. Air quality monitoring
- b. Leakage Detection of Toxic gases
- c. Alcohol Breath Test
- d. Motion Tracking

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

6) What is meant by the Sensitivity of a Gas Sensor? 1 point

- a. Change in the output signal for a unit change in gas concentration
- b. Ability to detect a particular gas in a mixture of different gases
- c. Ability to provide consistent output over a long period of time
- d. The time taken by the sensor to stabilize its response

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

7) The ModBus-TCP protocol defines two units in the data frame. One of them is Protocol Data Unit. What is the other one? 1 point

- a. Analogous Data Unit
- b. Advanced Data Unit
- c. Application Data Unit
- d. Architectural Data Unit

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

8) With respect to sensors, a camera which can simultaneously sense the ambient temperature as well as capture live video recordings is a type of _____ sensor. 1 point

- a. Scalar
- b. Multimedia
- c. Hybrid
- d. All of the above

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

9) EtherNet/IP defines two primary types of communications. What are those? 1 point

- a. Explicit and Implicit
- b. Internal and External
- c. Inbound and Outbound
- d. Telemetric and Geometric

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

10) Which of the following statements is incorrect about Profinet? 1 point

- a. Profinet is the standard for industrial Ethernet
- b. Profinet is based upon Ethernet/IP
- c. Profinet can not be used for process control or process measurement
- d. Profinet uses NRT, RT and IRT communication channels

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

11) Modbus-RTU is a serial protocol that follows the _____ architecture. 1 point

- a. Producer/Consumer
- b. Master/Slave
- c. Scalar/Vector
- d. None of the above

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

12) Which of the following network topologies is used by Profibus? 1 point

- a. Ring Topology
- b. Bus Topology
- c. Mesh Topology
- d. Star Topology

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

13) In the context of DeviceNet, CAN is the acronym for _____. 1 point

- a. Cognitive Adaptable Network
- b. Campus Area Network
- c. Controller Area Network
- d. Captive Area Network

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

14) How shorter TTL is achieved in uRLLC?

1 point

- a. By using smaller slot length
- b. By reducing Orthogonal Frequency Division Multiplexing symbols in TTL
- c. Reducing symbol duration
- d. All of the above

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

15) What is the frequency spectrum of mmWave Communication?

1 point

- a. 30 – 300 MHz
- b. 550 – 1720 KHz
- c. 88 – 108 MHz
- d. 30 – 300 GHz

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

