

## Week 9 : Assignment 9

Assignment not submitted

Due d

1)

Which of the following is not a reason for using fog computing concept in IIoT?

- a) The generated data can be time-sensitive which require immediate response to avoid hazards
- b) Fog can address the weaknesses of industrial automation
- c) To enable new functionalities along with additional features
- d) Fog simplifies the interoperability among different devices which work on different protocols

- ☐ a
- ☐ b
- ☐ c
- ☒ d

2)

Which of the following are the use cases of IIoT?

- a) Smart Grid and Power
- b) Oil and Gas Industries
- c) Both (a) and (b)
- d) None of the above

- ☐ a
- ☐ b
- ☒ c

3) Which of the following is not a fog service provider?

- a) FogHorn
- b) Amazon Web Services
- c) Crosser
- d) Sonm

☐ a

☒ b

4) "As the fog nodes are placed closer to the source device, it provides a quicker response to the computation, resources, storage, and service request of the end-users." True or false?

- a) True
- b) False

☒ a

5) Which of the following is not an object in R?

- a) Vectors
- b) Raw
- c) Data Frames
- d) Matrices

☐ a

☒ b

6) Which of the following package contains the functions for creating predictive models?

- a) Rpart
- b) e1071
- c) caret
- d) igraph

☐ a

☐ b

☒ c

7) Julia merges the benefits of \_\_\_\_\_ language with the performance of \_\_\_\_\_ language.

- a) Java, Python
- b) Python, C
- c) C, Python
- d) C++, Python

☐ a  
☒ b

8) Which of the following is/are the essential characteristic(s) of cloud computing according to NIST?

- a) On-demand self service
- b) Resource pooling
- c) Rapid elasticity
- d) All the above

☐ a  
☐ b  
☐ c  
☒ d

9) Which of the following are the processes associated with Data Management in IIoT?

- a) Generation, Acquisition, Storage, and Analysis
- b) Generation, Transmission, Storage, and Analysis
- c) Generation, Transmission, Storage, and Filtration
- d) None the above

☒ a

10) In Hadoop Master/Slave architecture, which of the following is not the task of the Master?

- a) Executes operations like opening, closing, and renaming files and directories
- b) Determines the mapping of blocks to data nodes
- c) Serves read and write requests from the file system's clients
- d) None of the above

☐ a  
☐ b  
☒ c

11) Choose the one which is wrong:

- a) Data center network should be agile
- b) Data center network should be reliable
- c) Data center network should be scalable
- d) none of the above

- ☐ a
- ☐ b
- ☐ c
- ☒ d

12) How many topology does the data center network have?

- a) 3
- b) 4
- c) 5
- d) 6

- ☐ a
- ☒ b

13) What are the components of Software-Defined Data Center?

- a) Edge node virtualization, OS virtualization, machine virtualization, Arithmetic logic layer
- b) Network virtualization, Storage virtualization, Server virtualization, Business logic layer
- c) Component virtualization, System virtualization, Server optimization, Network logic layer
- d) Network optimization, Storage optimization, Server optimization, Arithmetic logic unit

- ☐ a
- ☒ b

14) What is SDN?

- a) It is not a new technology, but rather reshaping the current network architecture.
- b) It is restructuring the current network infrastructure in order to achieve an improved network management.
- c) Both a) and b)
- d) Neither b) nor a)

- ☐ a
- ☐ b
- ☒ c

15) What are the three layers of SDN?

- a) Data plane, Network plane, and Infrastructure plane.
- b) Data plane, Network plane, and Application plane.
- c) Data plane, Control plane, and Application plane.
- d) Data plane, Control plane, and Network plane.

- ☐ a
- ☐ b
- ☒ c

## WEEK 9 2023A

1) What are the advantages of using fog computing in IIoT?

1 point

- ☐ (a) Consistent release of data from sensors and machines
- ☐ (b) Need for immediate action and quick response
- ☐ (c) Data may be critical as well as time-sensitive
- ☒ (d) All of the above

2) Organize the elements of fog computing architecture in ascending order of data processing delay.

- ☒ (a) Industrial end devices, Fog devices, and Cloud
- ☐ (b) Industrial end devices, Cloud, and Fog devices
- ☐ (c) Cloud, Industrial end devices, and Fog Devices
- ☐ (d) None of the above

3) Which of the following is/are the characteristic(s) of fog-enabled IIoT?

- ☒ (a) Real-time monitoring and visualization
- ☐ (b) Shrinkable processing architecture
- ☐ (c) Increased overall cost
- ☐ (d) All of the above

4) What are the advantages of using fog-based architecture in the smart grid and power industry?

- ☐ (a) Dynamic demand of appliances
- ☐ (b) Bi-directional communication between the consumer and supplier
- ☐ (c) Advanced metering infrastructure for bi-directional communication
- ☒ (d) All of the above

5) Select the advantages of fog-based architecture in the oil and gas industry.

- ☐ (a) Offering real-time advanced operation
- ☐ (b) Detection of unusual events
- ☐ (c) Step by step automation
- ☒ (d) All of the above

6) Which of the following data type is used in the R programming language?

- ☒ (a) Logical

7) Which of the following option is correct?

- ☐ (a) e1071: Network analysis tools  
☒ (b) rpart: Regression tree etc

8) Why is Julia programming used?

- ☐ (a) Open source  
☐ (b) Distributed computation and parallelism possible  
☐ (c) Support efficiently Unicode  
☒ (d) All of the above

9) Which of the following options is/are valid for the Julia programming language?

- ☐ (a) Use println() is used to print  
☐ (b) Variables can be assigned without defining the type  
☐ (c) Assigning strings  
☒ (d) All of the above

10) Select the correct cloud computing service model (s).

- ☒ (a) Infrastructure-as-a-Service

11) Which of the following properties is /are valid for a data center network?

- ☐ (a) Stable  
☐ (b) Secure  
☐ (c) Reliable  
☒ (d) All of the above



12) What is SDN?

- ☐ (a) Restructuring the current network infrastructure for improved network management
- ☐ (b) It is not a new technology – rather reshaping the current network architecture
- ☐ (c) Control and data planes are decoupled from the traditional forwarding devices
- ☒ (d) All of the above.

13) Which of the following aspects is/are true for SDN?

- ☐ (a) Rule placement
- ☐ (b) Controller placement
- ☐ (c) Security
- ☒ (d) All of the above

14) Select the correct application (s) of SDN.

- ☐ (a) WSN management
- ☐ (b) IoT applications
- ☐ (c) IIoT applications
- ☒ (d) All of the above

15) The mining industry uses \_\_\_\_\_ to load/unload mining materials.

- ☒ (a) Conveyer-belt



## Week 9 : Assignment 9

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Due date: 2023-09-27, 23:59 IST.

1) Why is it necessary to have fog computing in IIoT?

1 point

- a. To enable new functionalities
- b. To enrich the current functionalities available
- c. To process control analytics
- d. All of the above

- ☐ a.
- ☐ b.
- ☐ c.
- ☒ d.

2)

1 point

What is the sub-application area of fog computing in smart road transportation systems?

- a. Smart traffic signal system
- b. Healthcare
- c. Mining industry
- d. None of the above

- ☒ a.
- ☐ b.
- ☐ c.
- ☐ d.

3)

1 point

State true or false — Smart parking, smart traffic light systems, location-aware services, and the Internet of Vehicles are the possible use cases of the fog-based solutions for transportation.

- a. True
- b. False

- ☒ a.

4) Which of the following provide/s the fog platform?

1 point

- a. Nebbiolo Technologies
- b. Crosser
- c. FogHorn
- d. All of the above

- ☐ a.
- ☐ b.
- ☐ c.
- ☒ d.

5) Which of the following represents reserve word(s) in R programming?

1 point

- a. LOOPING
- b. TRUE
- c. BREAK-IN
- d. CONTINUING

- ☐ a.
- ☒ b.

6) Which of the following cannot be performed by R programming?

1 point

- a. Assembly code generation
- b. Data visualization
- c. Graphics representation
- d. Data Analysis

- ☒ a.

7)

1 point

Which of the following way/s can be used for the declaration of variables in R programming?

- a. A:=10
- b. B<->"Hi"
- c. TRUE->C
- d. 10<-D

- ☐ a.
- ☐ b.
- ☒ c.

8)

1 point

Fill in the blanks. \_\_\_\_\_ operator can be used to calculate the remainder of the division in R programming.

- a. /
- b. \
- c. %%
- d. !

- ☐ a.
- ☐ b.
- ☒ c.

9)

1 point

State true or false — '&' is a special operator that can create a series of numbers for a vector in R programming.

- a. True
- b. False

- ☐ a.
- ☒ b.

10)

1 point

Which of the following represents the correct order for the process of Data management?

- a. Acquisition -> Generation -> Storage -> Analysis
- b. Generation -> Acquisition -> Storage -> Analysis
- c. Acquisition -> Storage -> Generation -> Analysis
- d. Generation -> Analysis -> Storage -> Acquisition

- ☐ a.
- ☒ b.

11)

1 point

Fill in the blanks. \_\_\_\_\_ is used to find the spatial relationship between the objects and to analyze the geographic relation among them.

- a. Streaming analytics
- b. Time-series analytics
- c. Spatial analytics
- d. Descriptive analytics

- ☐ a.
- ☐ b.
- ☒ c.
- ☐ d.

12) Which of the following represents the properties of data center networks?

1 point

- a. Inconsistent
- b. Unreliable
- c. Secure
- d. Unscalable

- ☐ a.
- ☐ b.
- ☒ c.
- ☐ d.

13) Which of the following represents the topology used by the data center network?

1 point

- a. Eight-tier DCN
- b. Jcell
- c. Dcell
- d. QCube

- ☐ a.
- ☐ b.
- ☒ c.
- ☐ d.

14) What are the challenges of a data center network?

1 point

- a. Scalability
- b. Static resource assignment
- c. Fault-tolerance
- d. All of the above

- ☐ a.
- ☐ b.
- ☐ c.
- ☒ d.

15) State true or false —Software-Defined Network (SDN)

- a. True
- b. False

- ☐ a.
- ☒ b.

