# B.Tech DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

## 18CSE379T - INTERNET OF THINGS

*(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)*

**Note:**

i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

ii. **Part - B** and **Part - C** should be answered in answer booklet.

**Time: 3 Hours**  **Max. Marks: 100**

## PART - A (20 × 1 = 20 Marks)
### Answer all Questions

| | | Marks | BL | CO |
|---|---|---|---|---|

1. Any IoT Analytics tool should possess these _____. Choose all that is appropriately mandatory. — Marks 1, BL 2, CO 1
   i. Decent Interface
   ii. Right protocols
   iii. Some basic ML models
   iv. Some basic security aspects
   v. Should be only at the local premise
   (A) i, ii, iii, iv only        (B) i only
   (C) i, ii only                 (D) i, ii, iii only

2. Queues act as a buffer in which type of communication model? — Marks 1, BL 1, CO 1
   (A) Request-Response communication model        (B) Publish-Subscribe communication model
   (C) Exclusive Pair communication model           (D) Push-Pull communication model

3. CoAP is a protocol for? — Marks 1, BL 1, CO 1
   (A) Link layer                 (B) Network layer
   (C) Transport layer            (D) Application layer

4. IEEE802.3 is a standard specification for? — Marks 1, BL 1, CO 1
   (A) Ethernet                   (B) WiFi
   (C) WiMax                      (D) LR-WPAN

5. Which of the following are managed by OT? — Marks 1, BL 1, CO 2
   (A) Event-based                (B) Query-based
   (C) Data in Motion             (D) Real-Time

6. For overall Data management _____ — Marks 1, BL 1, CO 2
   (A) IT is responsible          (B) OT is responsible
   (C) IT and OT are responsible  (D) Data Layer is responsible

7. Which layer is responsible for creating a common data structure, consolidating, and storing? — Marks 1, BL 2, CO 2
   (A) Data Accumulation Layer    (B) Data Abstraction Layer
   (C) Application Layer          (D) Collaboration Layer

8. WiMax Technology comes under which type and range? — Marks 1, BL 2, CO 2
   (A) Wired, 100m max            (B) Wireless, 100m to a few km
   (C) Wireless, 1.5 km to 10km   (D) Wireless, several km to 50km

9. Which of the following is not a characteristic of IoT? — Marks 1, BL 2, CO 3
   (A) Dynamic & Self-Adapting    (B) Self-Configuring
   (C) Interoperable Communication Protocols        (D) Same Identity for all devices

10. Which protocol supports a medium range of communication?   1   1   3
    (A) Bluetooth                          (B) Zigbee
    (C) 3G                                 (D) 5G

11. Which of the following is correct for tactile sensors?   1   1   3
    (A) Touch sensitive                    (B) Pressure sensitive
    (C) Input voltage sensitive            (D) Humidity sensitive

12. Identify the sensor not used in smart phone   1   2   3
    (A) Accelerometer                      (B) Gyroscope
    (C) Fingerprint sensor                 (D) Blood Pressure Sensor

13. Which of the following is not the example of data in motion?   1   1   4
    (A) Client/server exchanges            (B) File transfer
    (C) Email                              (D) Data stored in hard drive

14. _____data analysis tells you what is happening, either now or in the past.   1   1   4
    (A) Descriptive                        (B) Prescriptive
    (C) Diagnostic                         (D) Predictive

15. _____are ML methods that mimic the way the human brain works   1   1   4
    (A) Neural Networks                    (B) Wireless Sensor Networks
    (C) IOT Networks                       (D) Mobile Networks

16. Which of the following is not the characteristic of big data?   1   1   4
    (A) Volume                             (B) Velocity
    (C) Variety                            (D) Very structured

17. The _____can also be defined as an abstraction of the complexity of a company by   1   1   5
    reducing it to its core elements and their interrelations.
    (A) Business model                     (B) Communication model
    (C) Publish-subscribe model            (D) Entrepreneur model

18. Which of the following law of information states "Information Is Not Depletable" ?   1   1   5
    (A) Seventh law                        (B) Second law
    (C) Third law                          (D) Fourth law

19. OSGi stands for   1   1   5
    (A) Open Source Gateway initiative     (B) Open Service Gateway initiative
    (C) Ontology Service Gateway           (D) Ontology Source Gateway initiative
        initiative

20. _____ includes models for data acquisition units,data processing and transmitting   1   1   6
    units
    (A) Sensor Hierarchy Ontology          (B) Sensor Data Ontology
    (C) Web Service Modelling Ontology     (D) Suggested Upper Merged Ontology

## PART - B (5 × 4 = 20 Marks)       Marks  BL   CO
Answer any 5 Questions

21. Sketch the diagram of IoT Data flow and write short notes on it.   4   3   1

22. Identify the types of data generated by the forest fire detection system. Determine the   4   4   1
    IoT level for designing the system.

23. List the IoT architectural drivers and outline each of them.   4   2   2

24. Give the classification of network access technologies based on distance with neat   4   4   2
    diagram.

25. List and differentiate the software-based solutions for IoT.   4   4   3

26. Outline light and radiation sensors with a real-time IoT application.   4   4   4

27. Write the significance of second law of information.   4   4   5

## PART - C (5 × 12 = 60 Marks)
### Answer all Questions

|  |  | Marks | BL | CO |
|---|---|---|---|---|

28.   (a) Illustrate any two communication models with necessary diagrams and an example for each.      12   2   1

**(OR)**

    (b) With neat sketch, write the significance of protocols in each layer in IoT Architecture.

29.   (a) Sketch the IoT reference model published by the IoT world Forum and illustrate each level.      12   2   2

**(OR)**

    (b) Draw the diagram of expanded view of the simplified IoT architecture and explain the core IoT functional stack.

30.   (a) i. Give the classification of actuators based on energy type with examples. [5 Marks]      12   4   3
      ii. List the components in the smart object with neat sketch and outline each of them [7 Marks]

**(OR)**

    (b) Illustrate the advantages and disadvantages of wireless sensor networks.

31.   (a) Compare big data analytics and edge analytics      12   4   4

**(OR)**

    (b) How the Machine learning is classified? Demonstrate each of them with suitable examples.

32.   (a) With neat sketch give an explanatory view of service framework in DiYSE.      12   3   6

**(OR)**

    (b) Interpret the role of Middleware Technologies for a DiY Internet of Things.

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