MASTER OF COMPUTER APPLICATION
FOURTH SEMESTER
INTERNET OF THINGS
MCA-402.3
[USE OMR SHEET FOR OBJECTIVE PART]

SET
A

Duration: 3 hrs.

Full Marks: 70

(**Objective**)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following: *1×20=20*

1. Who coined the term "Internet of Things"?
   a. Kevin Aston
   b. John Wright
   c. Edward Jameson
   d. George Garton

2. Which layer is used for wireless connection in IoT devices?
   a. Application layer
   b. Network layer
   c. Data link layer
   d. Transport layer

3. Which of the following is used to capture data from the physical world in IoT devices?
   a. Sensors
   b. Actuators
   c. Microprocessors
   d. Microcontrollers

4. Which of the following is not a sensor in IoT?
   a. BMP280
   b. DHT11
   c. Photoresistor
   d. LED

5. Which of the following is not an actuator in IoT?
   a. Stepper motor
   b. A fan
   c. An LED
   d. Arduino

6. Which of the following is used to reprogram a Bootloader in IoT devices?
   a. VHDL programming
   b. IDE
   c. ICSP
   d. MANET

7. How many numbers of elements in the Open IoT Architecture?
   a. 3 elements
   b. 7 elements
   c. 8 elements
   d. 6 elements

8. IoT-A stands for.....................
   a. Internet of Things Area
   b. Industrial of things Architecture
   c. Internet of Things Address
   d. Internet of Things Architecture

9. What IoT collects?
   a. Device data
   b. Machine generated data
   c. Sensor data
   d. Human generated data

10. What is the primary focus of M2M communication?
    a. Interconnectivity of devices
    b. Utilization of cloud services
    c. Human-to-human communication
    d. Remote monitoring and control

11. Cloud computing in IoT refers to:
    a. Distributing computing resources closer to the data source
    b. Storing and processing data on local devices
    c. Implementing security measures within IoT devices
    d. Utilizing remote servers for data storage and processing

12. What is the primary difference between Machine-to-Machine (M2M) and Internet of Things (IoT)?
    a. M2M and IoT are synonymous terms, representing the same concept
    b. IoT relies on human intervention for operation, whereas M2M operates autonomously
    c. M2M is limited to industrial applications, while IoT encompasses various domains including consumer devices
    d. M2M requires direct communication between devices, while IoT involves devices connected to a network

13. In which IoT communication model does data flow occur without prior subscription, and the data is sent to the receiving devices actively?
    a. Push Pull model
    b. Publish-Subscribe Model
    c. Both a and b
    d. None of the above

14. What is a critical security consideration in IoT deployments?
    a. Open access to all IoT devices on the network
    b. Public disclosure of IoT device specifications
    c. Implementation of strong authentication mechanisms
    d. Reliance on default device configurations

15. Which model is characterized by a direct, two-way communication between exactly two parties?
    a. Request-Response Model
    b. Publish-Subscribe Model
    c. Exclusive Pair Model
    d. Push-Pull Model

16. The layer in an IoT solution responsible for implementing user interfaces, applications, and services is known as the:
    a. Perception Layer
    b. Network Layer
    c. Data Processing Layer
    d. Application Layer

17. Which IoT communication API is widely used for its simplicity, scalability and compatibility with web technologies?
    a. MQTT
    b. CoAP
    c. AMQP
    d. HTTP

18. Which of the following is NOT a characteristic of WebSocket?
    a. Low-latency communication
    b. Persistent connection
    c. Bidirectional communication
    d. Support for batch processing

19. What does Ansible use to authenticate and communicate with target devices?
    a. API keys
    b. Passwords
    c. MAC addresses
    d. SSH keys

20. In which programming language do you write code in Arduino IDE?
    a. Python
    b. JavaScript
    c. Java
    d. C/C++

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. What is Sensor? Write the types and characteristics of Sensor. 2+4+4=10

2. Describe Actuation in IoT with diagram. Write the different types of Actuators along with its advantages and disadvantages. 4+6=10

3. What is IoT Value Chains? Describe briefly the overview of the key components of IoT Value Chains. 2+8=10

4. What do you mean by emerging Industrial structure for IoT? Describe briefly the overview of the emerging Industrial structure for IOT. 3+7=10

5. Describe the Request-Response, Publish-Subscribe, and Push-Pull models in IoT communication with a suitable diagram. Highlight the key characteristics, advantages, and suitable scenarios for each model. Compare and contrast the three models, discussing their applicability in different use cases. 10

6. List down the Functional layers of an IoT solution. Give appropriate examples to explain any two functional layers of IoT solution. 2+4+4=10

7. What is the IoT's M2M architecture? Give a brief explanation of each layer. Also, write down the Differences between M2M and IoT. 2+3+5=10

8. What is Raspberry pi? How to do programming in Raspberry pi? Whether the Raspberry pi is IOT code generation tool? Explain briefly. 2+3+5=10

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