

Roll No. ....

(05/25)

**14352**

## **B.C.A. EXAMINATION**

(For Batch 2021 & Onwards)

(Sixth Semester)

### **INTERNET OF THINGS**

**BCA-62**

*Time : Three Hours      Maximum Marks : 80*

**Note :** Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

#### **Compulsory Question**

1. (a) What is IoT ?
- (b) How does the business level contribute to IoT decision-making ?

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- (c) What are the different types of IoT ?
- (d) What are the challenges faced by network operators in managing IoT traffic ?
- (e) What are the essential building blocks of an IoT device ?
- (f) How does Skynet enhance IoT security ?
- (g) What is Apache Hadoop ?
- (h) How does Apache Storm ensure fault tolerance in streaming applications ? 8×2=16

### Unit I

- 2. (a) Discuss the key characteristics of IoT, such as connectivity, scalability, intelligence and interoperability. Provide examples for each. 8

- (b) How does Zigbee protocol differ from Bluetooth and Wi-Fi in IoT applications ? 8

- 3. (a) Explain, how IoT architecture is designed logically to handle data flow, processing and storage. 8

- (b) What are the advantages and limitations of using WSN in IoT applications ? 8

### Unit II

- 4. (a) What is Machine-to-Machine (M2M) communication ? How does it enable IoT applications ? 8

- (b) Explain the role of SDN in cloud computing and data centers. How does SDN optimize network resources ? 8



5. (a) What is Network Function Virtualization (NFV) ? How does it work ? 8
- (b) How can AI and machine learning enhance IoT system management ? 8

### Unit III

6. (a) What is a Raspberry Pi, and how is it used in IoT applications ? 8
- (b) Explain how IoT devices are used in agriculture for precision farming and environmental monitoring. 8
7. (a) What is WAMP and how is it used in IoT applications ? 8
- (b) Compare Django with Flask in terms of IoT application development. Which one is better suited for real-time applications ? 8

### Unit IV

8. (a) What is the MapReduce programming model ? Explain its working principle with an example. 8
- (b) Discuss the challenges and limitations of using YARN for large-scale data processing. 8
9. (a) What is Apache Oozie and why is it used in Hadoop ecosystems ? 8
- (b) Discuss real-world applications of Apache Spark in industries such as healthcare, finance and e-Commerce. 8

