

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BVoc DEGREE EXAMINATION MAY 2025
(Sixth Semester)

Branch – NETWORKING AND MOBILE APPLICATION

INTERNET OF THINGS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 What is the primary goal of the IoT World Forum (IoTWF) architecture
 - (i) To standardize a single IoT communication protocol
 - (ii) To establish a common framework for IoT system development
 - (iii) To replace existing IoT architectures with a new model
 - (iv) To eliminate the need for cloud computing in IoT
- 2 Which IEEE standard is designed for Low-Rate Wireless Personal Area Networks (LR-WPAN)?
 - (i) IEEE 802.11ah
 - (ii) IEEE 802.15.4
 - (iii) IEEE 1901.2a
 - (iv) IEEE 802.3
- 3 What is the default operating system recommended for Raspberry Pi?
 - (i) Windows 10
 - (ii) Ubuntu
 - (iii) Raspbian (Raspberry Pi OS)
 - (iv) macOS
- 4 Which component of the Hadoop ecosystem is responsible for distributed data storage?
 - (i) YARN
 - (ii) Apache Spark
 - (iii) HDFS
 - (iv) Apache Kafka
- 5 What is the primary goal of the Converged Plantwide Ethernet (CPwE) model in manufacturing?
 - (i) To increase the cost of network implementation
 - (ii) To eliminate the need for automation
 - (iii) To reduce the number of sensors in a factory
 - (iv) To integrate IT and OT for seamless industrial communication

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Explain the concept of sensors and actuators in IoT
OR
b Analyze the role of cloud computing in IoT.
- 7 a Explain the significance of 6LoWPAN in optimizing IP for IoT.
OR
b Compare MQTT and CoAP in terms of their message exchange mechanisms.
- 8 a Sketch out the main features of the Arduino IDE used for programming IoT applications.
OR
b How does Raspberry Pi differ from Arduino in computing power and applications? Explain apply for IoT system building blocks.

Cont...

- 9 a How does Apache Kafka facilitate real-time data streaming in IoT systems?
OR
b Outline the advantages of using NoSQL databases over traditional relational databases for IoT applications.
- 10 a Explain the significance of the GridBlocks Reference Model in the power utility industry.
OR
b How does smart lighting contribute to energy efficiency in smart cities?

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Examine the architecture of an IoT system
OR
b Point out the different communication technologies used in IoT.
- 12 a Compare and contrast IPv4 and IPv6 in the context of IoT.
OR
b Highlight the role of Routing over Low Power and Lossy Networks (RPL) in IoT.
- 13 a Discuss the design methodology for developing an IoT system. What are the key steps involved?
OR
b Describe the different interfaces in Raspberry Pi and their applications in IoT projects.
- 14 a Examine the Hadoop ecosystem and its significance in processing large-scale IoT data.
OR
b Discuss how NETCONF and YANG enable automated system management in IoT networks.
- 15 a Describe the layered architecture of smart and connected cities and explain how it enables seamless integration of IoT solutions.
OR
b Explain the working model of smart parking architecture and how IoT technologies help optimize parking space utilization.

Z-Z-Z

END