

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Bachelor of Technology (Computer Engineering) SEMESTER - 6 Summer 2025 (Regular)

Course :Bachelor of Technology (Computer Engineering) Branch : Engineering and Technology

Semester : SEMESTER - 6

Subject Code & Name: BTCOE604B - INTERNET OF THINGS

Time : 3 Hours]

[Total Marks : 60

Instructions to the Students:

1. Each question carries 12 marks.
2. Question No. 1 will be compulsory and include objective-type questions.
3. Candidates are required to attempt any four questions from Question No. 2 to Question No.6
4. Use of non-programmable scientific calculators is allowed.
5. Assume suitable data wherever necessary and mention it clearly.

Q1. Objective type questions. (Compulsory Question)

12

- 1 Who is credited with coining the term 'Internet of Things'?A) Tim Berners-LeeB) Kevin AshtonC) Vint CerfD) Ray Tomlinson
- 2 Which technology is considered a key enabler of IoT?A) RFIDB) HTMLC) BlockchainD) AI
- 3 Which of the following is NOT a characteristic of IoT devices?A) ConnectivityB) Data GenerationC) Manual ProcessingD) Embedded Sensors
- 4 What does the convergence of IT and IoT primarily enable in organizations?A) Increased hardware costsB. Real-time decision-making and automationC. Manual data processingD. Reduced data collection
- 5 Which technology is most essential for processing large volumes of IoT data efficiently?A. Word processorsB. Big Data AnalyticsC. Traditional LAND. USB storage
- 6 What is the primary function of sensors in IoT systems?A. Visualizing dataB. Generating random valuesC. Collecting real-world data for processingD. Managing cloud subscriptions
- 7 Which network technology is expected to enhance IoT performance significantly?A. 3GB. EthernetC. 5GD. Dial-up
- 8 Which version of IP is most suitable for supporting a massive number of IoT devices?A. IPv1B. IPv4C. IPv6D. IPX
- 9 What is 6LoWPAN in the context of IoT?A. A wireless encryption methodB. A lightweight IPv6 adaptation layer for low-power devicesC. A transport layer protocolD. A type of IoT application
- 10 What makes IoT devices particularly vulnerable to cyberattacks?A. Use of open-source softwareB. Limited processing power and storageC. Large physical sizeD. Short battery life
- 11 Which communication technologies are commonly used in Smart City IoT networks?A. VGA and HDMIB. Wi-Fi, LPWAN, Zigbee, and 5GC. HTTP and FTPD. LAN cables only

- 12 In Smart City architecture, what is the purpose of the data processing layer? A. To build physical infrastructure B. To monitor internet speed C. To analyze and store data collected from sensors D. To repair faulty sensors

Q2. Solve the following.

- A) Explain how the Internet of Things (IoT) plays a critical role in the process of digitization across various sectors. 6
- B) Discuss the concept of the convergence of Information Technology (IT) and the Internet of Things (IoT). 6

Q3. Solve the following.

- A) Discuss the key components of sensor networks, their typical applications, and the main challenges faced in deploying them. 6
- B) Discuss the importance of connectivity, the common communication protocols used, and the challenges faced in ensuring seamless and secure connections between smart objects. 6

Q4. Solve Any Two of the following.

- A) Discuss the role of Internet Protocol (IP) as the network layer in the Internet of Things (IoT). 6
- B) Explain the need for optimization in Internet of Things (IoT) systems or Information Technology (IT) environments. 6
- C) Explain why optimizing Internet Protocol (IP) is necessary for Internet of Things (IoT) applications. 6

Q5. Solve Any Two of the following.

- A) Explain the importance of data analytics for IoT systems. 6
- B) Describe the main types of machine learning, and discuss how machine learning is applied in real-world scenarios, especially in areas like IoT, healthcare, or finance. 6
- C) Explain why IoT security is critical and highlight the potential risks associated with inadequate security measures. 6

Q6. Solve Any Two of the following.

- A) Explain the working of a wireless temperature monitoring system with a focus on the role of temperature sensors. 6
- B) Describe the architecture of a Smart City based on the Internet of Things (IoT). 6
- C) Explain the concept of Smart City Security Architecture. 6

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