BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Tech.(CSE)-DS-2023
Course Name – Internet of Things
Course Code - ESCD301
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) State the name of the protocol used in IoT network
a) TCP b) UDP
c) Both d) None of the these

(ii) Select where should the computer be connected to join the Internet
a) Internet architecture Board b) Internet Service Provider
c) Internet Society d) Intranet Service provider

(iii) Select the full form of "SSID" in Wi-Fi networks
a) Service Set Identifier b) Standard Service Identifier
c) Security Set Identifier d) Simple Set Identifier

(iv) Select the correct term stand for "RFID"
a) Radio Frequency Integration Device b) Radio Frequency Identification
c) Remote Frequency Identification d) Radio Functional Identification

(v) Select the protocol commonly used for data transmission in IoT networks.
a) HTTP b) CoAP
c) MQTT d) FTP

(vi) Select the communication protocol commonly used in IoT devices for low-power wide-area networking.
a) Wi-Fi b) Bluetooth
c) LoRaWAN d) Ethernet

(vii) Select protocols is commonly used in Web of Things applications?
a) HTTP b) Zigbee
c) FTP d) XMPP

(viii) Select the option which is false with respect to UDP
a) Connection-oriented b) Unreliable
c) Transport layer protocol d) Low overhead

(ix) Identify the size of an IPv6 address.

a) 32 bits
b) 64 bits
c) 128 bits
d) 256 bits

(x) Identify a common challenge in Wireless Sensor Networks
a) High-speed data transmission
b) Limited battery life of sensor nodes
c) High cost of implementation
d) Large physical size of sensors

(xi) Identify the clustering technique often used for network routing.
a) Hierarchical clustering
b) K-Means clustering
c) Fuzzy clustering
d) Spectral clustering

(xii) Choose the lightweight protocols.
a) IP
b) HTTP
c) MQTT
d) CoAP

(xiii) Choose the correct layer of the OSI model where Bluetooth operates.
a) Network Layer
b) Physical Layer
c) Application Layer
d) Data Link Layer

(xiv) Examine the primary function of a SCADA system
a) To manage financial transactions
b) To control and monitor industrial processes
c) To perform complex mathematical computations
d) To store and retrieve large volumes of data

(xv) Choose the key requirement for setting up a secure cloud environment for IoT.
a) Encryption of data at rest and in transit
b) Choosing a cloud provider with low latency
c) Ensuring that all data is encrypted
d) Setting up a firewall for network security

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the reason of preferring TCP/IP over UDP. (3)
3. Explain the Zigbee network topology options. (3)
4. Develop a basic understanding of the 6LoWPAN protocol in IoT. (3)
5. Describe the role of security in IoT systems. (3)
6. Justify the use of IPv6 over IPv4 for IoT networks. (3)

OR

Summarize the primary function of GPS in IoT applications. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Describe the concept of clustering in IoT and its significance for network management. (5)
8. Explain the role of Low-Energy Adaptive Clustering Hierarchy (LEACH) protocol in IoT. (5)
9. Summarize the key characteristics of clustering protocols in IoT. (5)
10. Apply the concept of smart farming to improve crop yield and resource management in agricultural practices. (5)
11. Evaluate the advantages and challenges of implementing smart fleet management systems in logistics companies. (5)
12. Explain how sensors and cloud platforms communicate in an IoT system. (5)

OR

Explain the importance of scalability in a cloud-based IoT environment. (5)

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