BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – Dip.CSE-2022
Course Name – Internet of Things
Course Code - DCSE-PC501
(Semester V)

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 full form of IOT.
a) internet of telegram   b) internet of things
c) intelligent of things   d) intercommunication of things

(ii)   Select primary function of the IoT communication block.
a) Collecting data from sensors   b) Handling communication for the IoT system
c) Providing an interface for user control   d) Securing the IoT system

(iii) Select the role of actuators in an IoT system.
a) Collect environmental data   b) Process and store data
c) Perform physical actions based on commands   d) Secure the communication between devices

(iv) Select the component that is responsible for decision-making in an IoT system.
a) Sensor   b) Actuator
c) Controller   d) Communication module

(v)   Select the operating frequency band of Zigbee.
a) 2.4 GHz   b) 5 GHz
c) 900 MHz   d) 3.5 GHz

(vi) Write the benefit of CoAP over HTTP.
a) Real-time video conferencing   b) Sending small sensor data from IoT devices
c) Large-scale file transfer   d) Email communication

(vii) Define the primary concern in IoT security
a) Unauthorized access to cloud services   b) Data encryption Device
c) vulnerabilities and unauthorized access   d) Phishing attacks1

(viii) Identify a key consideration in managing IoT device vulnerabilities.

a) Increasing device complexity
b) Timely and regular firmware updates
c) Ignoring potential risks
d) Relying solely on physical security measures

(ix) Select a key consideration in securing communication between IoT devices.

a) Lack of encryption
b) Use of proprietary communication protocols
c) Excessive use of cloud services
d) Ignoring potential risks

(x) Select the wireless technologies that is used in IoT, consumes the least amount of power

a) Zigbee
b) Bluetooth
c) WiFi
d) GSM / CDMA

(xi) Write the name of the main pillars of the Web of Things.

a) Web protocols.
b) Semantic interoperability.
c) Device abstraction.
d) User management.

(xii) Choose the true statement about WoT middleware.

a) It abstracts hardware complexity.
b) It simplifies data communication.
c) It supports cloud storage.
d) It excludes web protocols.

(xiii) Choose the component that is responsible for device abstraction in WoT.

a) Middleware.
b) Application layer.
c) Data layer.
d) User layer.

(xiv) Choose the name of the organization that is involved in WoT standardization besides W3C.

a) IETF.
b) IEEE.
c) W3C.
d) OPC UA.

(xv) Identify the key feature of future factory concepts.

a) Using AI for process optimization.
b) Replacing old machinery.
c) Real-time monitoring.
d) Enhanced human control.

Group-B
(Short Answer Type Questions)   3 x 5=15

2. State the main components of an IoT ecosystem.   (3)
3. Illustrate the key design principles of the OIC Architecture, and its importantance for IoT   (3)
   systems.
4. Write the differences between cloud deployment and edge deployment models in IoT.   (3)
5. Discuss Merits and demerits of IoT.   (3)
6. Evaluate the importance of using unified multitier architecture in WoT systems.   (3)
OR
Summarize the role of middleware in ensuring the seamless operation of WoT.   (3)

Group-C
(Long Answer Type Questions)   5 x 6=30

7. Compare the impact of Future Factory Concepts with traditional industrial setups in terms of   (5)
   efficiency and productivity.
8. Evaluate the effectiveness of existing IoT middleware solutions in addressing the challenges of   (5)
   industrial IoT applications.
9. Describe various functional blocks of IoT.   (5)
10. Explain different characteristics of IoT.   (5)
11. Explain the role of RFID in IoT systems.   (5)

12. Estimate the challenges involved in integrating IoT with existing industrial systems, such as   (5)
Brownfield IoT.

OR

Evaluate the role of Smart Objects in improving the automation processes of industrial   (5)
applications.

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