

Roll No.

Total Pages : 03

MCAQ/D-23

24029

CLOUD COMPUTING AND IoT

MCA-20-34(i)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all. Question No. **1** is compulsory. In addition to the compulsory question, attempt *four* more questions selecting one question from each Unit. All questions carry equal marks.

(Compulsory Question)

1. Answer any *five* of the following questions in brief :
 - (i) List and define the different deployment models in cloud computing.
 - (ii) What is the benefit of Service-Oriented Architecture ?
 - (iii) Explain the purposes of email and notification, services in cloud computing.
 - (iv) Discuss the significance of gateway devices in managing connected devices and consolidating data.
 - (v) What is an RF transceiver ?
 - (vi) Identify one common application of IoT in industries.
 - (vii) Discuss one point of differences between CoAP-SMS and CoAP-MQ protocols.

(5-36/1) L-24029

P.T.O.

Unit I

2. Explain the concept of cloud computing and trace its origins. How has the definition evolved over time ?
3. Discuss the advantages and disadvantages of virtualization in IT infrastructure. How does virtualization improve resource utilization, and what are its potential downsides ?

Unit II

4. Explain the differences between compute, storage, and database services in cloud computing. Provide case studies showcasing the use of each service type.
5. Identify and explain three major security issues in cloud computing. Describe the various threats that can compromise cloud security.

Unit III

6. Explain the concept of the Internet of Things (IoT) and its fundamental framework. Illustrate how IoT devices communicate with each other and the broader Internet ?
7. Analyze the characteristics and functionalities of NFC, RFID, and Bluetooth (BR/EDR and Low Energy), in the context of IoT. Provide examples illustrating the applications of each technology.

Unit IV

8. Explain the significance of client authentication in the context of IoT devices connected via web protocols. Discuss various authentication mechanisms and their suitability for resource constrained devices.
9. Enumerate and discuss the key security challenges encountered in IoT environments, considering device heterogeneity, data privacy concerns, and potential vulnerabilities.