MASTER OF COMPUTER APPLICATIONS (MCA-NEW)

Term-End Examination

December, 2023

MCS-227 : CLOUD COMPUTING AND IoT

Time : 3 Hours   *Maximum Marks : 100*

Weightage : 70%

Note **:** *(i)* *Question No. 1 is compulsory.*

(ii) Answer any ***three*** *questions from the rest.*

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1. (a) With reference to the Cloud Architecture, explain the following layers :   10

    (i) Client access layer

    (ii) Internet connectivity leyer

    (iii) Cloud service management layer

    (iv) Layer of physical resources

(b) What is load-balancing ? Why is it imperative in cloud computing to balance the cloud-load ? Also, explain briefly hardware-based load balancer and virtual load balancer. **10**

(c) List and explain any *ten* emerging IoT technologies. **10**

(d) What is Edge Computing ? Explain its working with the help of a use-case. **10**

2. (a) Explain the following IoT-connectivity technologies : **10**

   (i) Zigbee

   (ii) Z-wave

   (iii) RFID

   (iv) NFC

   (b) With reference to cloud-security, explain the following : **10**

   (i) Identity management

   (ii) Access control mechanism

3. (a) Explain any *five* applications of cloud computing. 5

   (b) Write a short note on utility computing. 5

   (c) Explain the evolution of cloud computing. 5

   (d) Describe briefly the Hybrid-Cloud Deployment Model. 5

4. (a) What is machine or server level virtualization ? Briefly explain the following types of server level virtualization : 10

   (i) Hypervisor

   (ii) Full-virtualization

   (b) Explain the following sensors used in IoT devices along with its features and applications : 10

   (i) Image sensors

   (ii) Chemical sensors

   (iii) Acceleration sensors

   (iv) Proximity sensors

5. Write short notes on the following :   4×5=20

   (a) Actuators and its types

   (b) MQTT, CoAP and XMPP IoT protocols

   (c) Challenges of IoT

   (d) Applications of fog computing