MCS–227

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.*

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

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(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