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MCS-227

MASTER OF COMPUTER APPLICATIONS (MCA-NEW)

Term-End Examination

June, 2022

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) Define Cloud Computing. List and explain the four categories of cloud deployment models. 10

(b) Define resource sharing in cloud computing. Explain the implementation of single tenancy and multi-tenancy types of resource sharing in cloud computing. 10

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(c) What is Internet of Things (IoT) ? What are the characteristics ? Also explain industrial IoT, infrastructure IoT and internet of military things (IoMT) categories of IoT. 10

(d) Explain the differences between Fog computing and Edge computing. Draw the block diagram of 3-layer architecture of fog computing and explain all its layers. 10

2. (a) Differentiate between cluster, grid and cloud computing with respect to its characteristics, physical structure, hardware, resources, applications, networking and scalability features. 10

(b) What is Auto scaling in cloud ? Write and explain fixed amount auto scaling algorithm. 10

3. (a) Define resource pooling in cloud environment. In this context, explain the following : 10

   (i) Server Pools

   (ii) Storage Pools

   (iii) Network Pools

   (b) With the help of a block diagram, explain the 4-levels in a cloud architecture. 10

4. (a) Define virtualization. Explain its underlying abstraction. Also mention the features provided by virtualization environment. 10

   (b) Explain the following communication protocols with reference to the IoT devices : 10

   (i) IPv6

(ii) MQTT

(iii) CoAP

(iv) XMPP

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

(a) Multihoming and its types

(b) Horizontal scaling in cloud environment

(c) Challenges in cloud computing

(d) Applications of edge computing