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Subject Code:- AMICSAI0621

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech. (Integrated)

SEM: VI - THEORY EXAMINATION (20.....- 20.....)

Subject: Big Data

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

20

1. Attempt all parts:-

1-a. Which of the following is an example of a SaaS cloud service? [CO1,K2]

1

- (a) Google Workspace
- (b) Dropbox
- (c) Salesforce
- (d) All of the above

1-b. Which of the following is the most refined and restrictive cloud service model? [CO1,K2]

1

- (a) PaaS
- (b) IaaS
- (c) SaaS
- (d) CaaS

1-c. Name of C++ interface to hadoop map reduce. (CO2,K4)

1

- (a) Hadoop streaming
- (b) Hadoop Pipes
- (c) Mahaout
- (d) Oozie

1-d. Used for collection and ingestion of semi-structured data. (CO2,K4)

1

- (a) Hbase
- (b) PIG

- (c) Flume
- (d) Sqoop
- 1-e. This is a failure in YARN.[CO3,K2] 1
 - (a) Failure of running task
 - (b) Failure of Node manager
 - (c) Failure of application manager
 - (d) All of the above
- 1-f. YARN stands for [CO3,K2] 1
 - (a) Yahoo another resource name
 - (b) Yet another resource negotiator
 - (c) Yahoo archived resource names
 - (d) Yet another resource need
- 1-g. The future of federation in cloud computing is [CO4,K3] 1
 - (a) It is expected to become less important as more organizations move to centralized cloud platforms.
 - (b) It is likely to remain an important concept as more organizations adopt multi-cloud environments.
 - (c) It is likely to become irrelevant as cloud providers merge and consolidate.
 - (d) It is difficult to predict the future of federation in cloud computing.
- 1-h. Federation in cloud computing relate to hybrid cloud environments [CO4,K3] 1
 - (a) Federation is a synonym for hybrid cloud.
 - (b) Federation is a subset of hybrid cloud.
 - (c) Hybrid cloud is a subset of federation
 - (d) Federation and hybrid cloud are unrelated concepts.
- 1-i. Types of storage classes does GCP provide. [CO5,K4] 1
 - (a) 2
 - (b) 3
 - (c) 4
 - (d) 5
- 1-j. Cloud IAM is a ____ service in GCP? [CO5,K4] 1
 - (a) Computing service
 - (b) Network service
 - (c) Identity and security
 - (d) Management tools

2. Attempt all parts:-

- 2.a. Write two examples of Big Data platforms. [CO1,K2] 2
- 2.b. Explain Map reduce. [CO2,K4] 2
- 2.c. Discuss HDFS daemons. [CO3,K2] 2

- 2.d. Define SaaS. [CO4,K3] 2
- 2.e. List out all Advantages of Cloud data store. [CO5,K4] 2

SECTION-B

30

3. Answer any five of the following:-

- 3-a. Distinguish between Cluster and Grid computing. (CO1,K2) 6
- 3-b. Define Map-Reduce in detail with some of its features. [CO1,K2] 6
- 3-c. Write all the features of Hadoop 2.0. [CO2,K4] 6
- 3-d. Explain Map reduce concept with real world examples. [CO2,K4] 6
- 3.e. Explain brief of the following. i) PIG ii) HIVE [CO3,K2] 6
- 3.f. How would you explain about 6
- (i) the Google App Engine
- (ii) the features Google App Engine
- (iii) the supporting languages of Google App Engine (CO4,K3)
- 3.g. Elaborate about Different firewalls. Explain each firewall Functions. [CO5,K4] 6

SECTION-C

50

4. Answer any one of the following:-

- 4-a. Explain the reason for Hadoop as a main technology component for Big Data. Also explain how it supports Big Data. [CO1,K2] 10
- 4-b. How Cloud Computing provides scalability and fault tolerance. (CO1,K2) 10

5. Answer any one of the following:-

- 5-a. Explain YARN with its features. Also define components of YARN. [CO2,K4] 10
- 5-b. Explain the application workflow of YARN with diagram. [CO2,K4] 10

6. Answer any one of the following:-

- 6-a. Identify the major components of HDFS explain in detail. [CO3,K2] 10
- 6-b. Classify the NameNode, Backup Node and Checkpoint NameNode? [CO3,K2] 10

7. Answer any one of the following:-

- 7-a. Can you explain all cloud computing services? Distinguish between IaaS, PaaS and SaaS in tabular form with examples. (CO4,K3) 10
- 7-b. Explain the programming languages, application frameworks and databases in terms of cloud service models. (CO4,K3) 10

8. Answer any one of the following:-

- 8-a. Explain BigQuery with all the basic concepts of BigQuery. [CO5,K4] 10
- 8-b. Explain NIC and functions of NIC. [CO5,K4] 10