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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (2025 - 2026)

Subject: Cloud and Edge Computing

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

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1. Attempt all parts:-

- (1.1) Identify the correct statement about cloud computing. [CO1] [K1] 1
- (a) Cloud computing relies on a set of protocols needed to manage interprocess communications
 - (b) Platforms are used to create more complex software
 - (c) Cloud architecture can couple software running on virtualized hardware in multiple locations to provide an on-demand service
 - (d) All of the mentioned
- (1.2) The Amazon _____ is a Web-based service that allows business subscribers to run application programs in the Amazon.com computing environment. [CO1] [K1] 1
- (a) EC3
 - (b) EC4
 - (c) EMR
 - (d) None of the mentioned
- (1.3) Point out the correct statement. [CO2] [K1] 1
- (a) Service Oriented Architecture (SOA) describes a standard method for requesting services from distributed components and managing the results
 - (b) SOA provides the translation and management layer in an architecture that removes the barrier for a client obtaining desired services
 - (c) With SOA, clients and components can be written in different languages and can use multiple messaging protocols
 - (d) All of the mentioned
- (1.4) The topic in the publish method is in which form? [CO2] [K2] 1

- (a) JSON
 - (b) XML
 - (c) BINARY
 - (d) PLAIN TEXT
- (1.5) In _____ the client is provided with provider applications running on a cloud infrastructure. [CO3][K1] 1
- (a) SaaS
 - (b) PaaS
 - (c) IaaS
 - (d) FaaS
- (1.6) Amazon EBS provides _____. [CO3] [K1] 1
- (a) object storage solutions
 - (b) file storage solutions
 - (c) block storage solutions
 - (d) all of the above
- (1.7) MQTT stands for [CO4][K1] 1
- (a) Manage Queuing Transport Telemetry
 - (b) Message Queuing Transport Telemetry
 - (c) Queuing Transport Telemetry
 - (d) None of the above
- (1.8) Identify the statement that best describes the proposed Complex Event Processing (CEP) mechanism? [CO4] [K1] 1
- (a) The CEP mechanism is specific to certain types of sensing devices and CEP engines.
 - (b) The CEP mechanism is universally applicable and compatible with all sensing devices but not CEP engines.
 - (c) The CEP mechanism is universal and suitable for any heterogeneous sensing devices and CEP engines.
 - (d) The CEP mechanism is limited in its applicability to certain types of sensing devices only.
- (1.9) Fog computing also known as [CO5][K1] 1
- (a) Fogging
 - (b) Lodging
 - (c) Fogger
 - (d) Lodger
- (1.10) In Edge computing OTA stands for _____ [CO5] [K1] 1
- (a) Over to Air
 - (b) Over the Air
 - (c) Open to Air
 - (d) Open the Asset

2. Attempt all parts:-

- (2.1) Differentiate between public and private cloud. [CO1] [K2] 2

- (2.2) List any two implementation Levels of Virtualization. [CO2] [K1] 2
- (2.3) Define IaaS, PaaS, and SaaS in the context of cloud computing. [CO3] [K2] 2
- (2.4) Mention any two benefits of edge computing. [CO4] [K1] 2
- (2.5) Mention role of agent in IoT. [CO5] [K2] 2

SECTION-B

30

Answer any one of the following:-

- (3.1) Describe the history of cloud computing. [CO1] [K1] 6
- (3.2) Explain the client-server architecture used in cloud computing. [CO1] [K2] 6

Answer any one of the following:-

- (3.3) Examine the role of broker in Publish Subscribe model. [CO2] [K3] 6
- (3.4) Explain the purpose of virtualization. [CO2] [K2] 6

Answer any one of the following:-

- (3.5) Compare Amazon S3 and RDS. [CO3] [K3] 6
- (3.6) Classify different models for deployment in cloud computing. [CO3] [K2] 6

Answer any one of the following:-

- (3.7) Explain Launching an Edge Testbed with a smart city usecase. [CO4][K4] 6
- (3.8) Discuss the role of edge computing in addressing security and privacy concerns in the banking and finance industry. [CO4] [K4] 6

Answer any one of the following:-

- (3.9) Explain role of Porting the OTA Library with suitable example. [CO5][K5] 6
- (3.10) Draw AWS IoT core with a schematic diagram for Condition based monitoring usecase. [CO5][K5] 6

SECTION-C

50

4. Answer any one of the following:-

- (4.1) Compare parallel and distributed computing. [CO1] [K2] 10
- (4.2) List any 5 Characteristics of cloud computing. How elasticity impact on cloud. [CO1] [K1] 10

5. Answer any one of the following:-

- (5.1) Discuss about Implementation Levels of Virtualization. [CO2] [K2] 10
- (5.2) Compare SOA with traditional system architecture. [CO2] [K2] 10

6. Answer any one of the following:-

- (6.1) Define different layers which define cloud architecture? [CO3][K1] 10
- (6.2) State Architectural Design Challenges of cloud computing. [CO3] [K3] 10

7. Answer any one of the following:-

- (7.1) Explain about components of edge computing taking any real time project example. [CO4] [K4] 10
- (7.2) Discuss, how Edge AI can be used to improve ATMs' security. [CO4] [K5] 10

8. Answer any one of the following:-

- (8.1) Illustrate the complete process of porting the OTA Library IoT Agent. [CO5] [K4] 10

- (8.2) Explain AWS IoT Set up procedure. List the step by step process to connect a thing to AWS Core Cloud. [CO5] [K5] 10

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