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B.Tech DEGREE EXAMINATION, NOVEMBER 2023

Seventh Semester

18CSE323T - FOG COMPUTING ANALYTICS

(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)

Note:

i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours **Max. Marks: 100**

PART - A (20 × 1 = 20 Marks) — Answer **all** Questions

		Marks	BL	CO
1.	What role does Edge computing play in relation to cloud computing? (A) They have no connection (B) They are identical (C) Edge computing could act as an alternative to cloud computing (D) Edge computing represents either the silver lining or the outer boundary of the cloud	1	1	1
2.	Among the following, which challenge remains unresolved by IoT edge computing? (A) Latency challenges (B) Bandwidth challenges (C) Data compliance challenges (D) Complex connectivity challenges	1	2	1
3.	Identify the computing which is classified as heavyweight and dense form of computing power? (A) Mobile Cloud computing (B) Fog computing (C) Mist computing (D) Cloud computing	1	2	1
4.	What is edge computing? (A) An architecture that processes data as close to its source as possible (B) A new name for computing (C) A type of computing that leaves network teams on edge (D) Computing that teams can only attempt when standing on the edge of something	1	1	1
5.	What are the benefits of edge computing security? (A) Edge computing security only benefits IoT (B) Edge computing only secures table data about edges, including edges mountain edges and (C) Edge computing security can respond in real time and host behavioral threat analytics (D) Edge computing cannot be secure	1	1	2
6.	What is AWS IoT? (A) A platform for building, deploying, and managing IoT applications (B) A storage service for storing IoT data (C) A load-balancing service for IoT devices (D) A service for running virtual machines for IoT applications	1	1	2
7.	Which is an operating system for IoT (A) Contiki (B) RIOT (C) Spark (D) Allyoyn	1	1	2

8.	MQTT is primarily used for ---------- (A) User communication (B) System transfer (C) Machine-to-Machine Communication (D) Create connection	1	2	2
9.	Software-defined networking (SDN) work with fog computing because (A) Edge computing only works in a software-defined network (B) SDN can streamline how fog computing processes data (C) They don't work well together (D) They are the same	1	2	3
10.	Software-Defined Networking (SDN) has _____and _____ plane (A) Control and data (B) Control and Barcode (C) Barcode and Data (D) Data and cloud	1	1	3
11.	What is AWS IoT Device Defender? (A) A security service for securing IoT devices (B) A storage service for storing IoT data (C) A load-balancing service for IoT devices (D) A service for running virtual machines for IoT applications	1	1	3
12.	Identity the computing model which is extension of cloud computing. (A) Mobile cloud computing (B) Mist computing (C) Fog computing (D) Cloud computing	1	1	3
13.	What are the benefits of fog computing security? (A) fog computing security only benefits IoT. (B) fog computing only secures data about network edge devices. (C) fog computing security can respond in real-time and host behavioral threat analytics. (D) fog computing cannot be secure.	1	1	5
14.	Even in two-factor authentication, users may still be vulnerable to _____ (A) scripting (B) cross attack (C) main-in-the-middle attack (D) radian	1	2	5
15.	Which aspect of nonfunctional requirements is primarily concerned with the adaptability of an MFC (Mobile Fog Computing) system to diverse device types and capabilities (A) Heterogeneity (B) Context-awareness (C) Tenant (D) Security	1	1	5
16.	Which aspect of end-to-end network heterogeneity primarily deals with the radio network and communication protocol between the fog server and the end-device (A) Fog-to-fog (F2F) (B) Fog-to-cloud (F2C) (C) Device-to-fog (D2F) (D) Tenant-side application	1	1	5
17.	Real-time analysis on data stored in Amazon S3 is performed using---------- (A) Amazon EC2 (B) Amazon Redshift (C) Amazon Kinesis Data Streams (D) Amazon QuickSight	1	2	6
18.	Which AWS service allows the users to process and analyze large amounts of streaming data in real time? (A) Amazon S3 (B) Amazon Redshift (C) Amazon Kinesis Data Streams (D) Amazon QuickSight	1	2	6
19.	Data in ____ bytes size is called big data (A) Meta (B) Giga (C) Tera (D) Peta	1	1	6
20.	Identify the incorrect big data technologies (A) Apache Pytorch (B) Apache Kafka (C) Apache Hadoop (D) Apache Spark	1	1	6

PART - B (5 × 4 = 20 Marks)

Answer **any 5** Questions

		Marks	BL	CO
21.	Define and differentiate between edge devices and edge services	4	1	1
22.	Explain the AWS IoT core and its services	4	2	2
23.	Describe the importance of Fog Networking.	4	1	3
24.	Describe the role of Intrusion Detection Systems (IDS) in cloud computing security	4	2	5
25.	Provide two real-world examples of how organizations can effectively apply Big Data analytics to gain insights and make informed decisions. Briefly discuss the impact of Big Data applications in these scenarios, emphasizing how they can enhance business operations or provide valuable insights.	4	2	6
26.	Outline the advantages and disadvantages of Software-Defined Networking.	4	1	3
27.	Outline the advantages and limitations of RTPS computing protocols.	4	2	3

PART - C (5 × 12 = 60 Marks)

Answer **all** Questions

		Marks	BL	CO
28.	(a) Briefly compare edge and fog computing.	12	1	1
	(OR)			
	(b) How Fog Computing enhances the value of the Internet of Things solutions? Explain.			
29.	(a) Describe Contiki simulator and its development environment.	12	2	2
	(OR)			
	(b) Explain ifogsim simulator architecture, components, and application models.			
30.	(a) Analyze the importance of Network virtualization and NFV provisioning in Fog computing.	12	4	3
	(OR)			
	(b) Explain fog communication protocol and Data Distribution Service protocol (DDS) with the model diagram.			
31.	(a) Discuss the security challenges and potential attacks that can target fog computing environments in detail.	12	2	5
	(OR)			
	(b) Compare and contrast Cloud and Fog resource allocation in AWS.			
32.	(a) Explain Data analytics using the Fog engine with a real-time example.	12	4	6
	(OR)			
	(b) Explain the challenges and smart management of Big Data in Fog.			

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