


National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Introduction to Cloud Computing	Course Code:	CS4037
	Degree Program:	BS (CS)	Semester:	Spring 2023
	Exam Duration:	60 Minutes	Total Marks:	40
	Paper Date:	11/04/23	Weight	15
	Exam Type:	Midterm II	Page(s):	4

Student : Name: _____ Roll No. _____ Section: _____

Instruction: Attempt all questions on the question paper.
Rough sheets can be used but it should not be attached.

Question # 1: [20 marks, CLO # 2]

From the given options, select the best answer.

- _____ is a managed Distribute Denial of Service (DDoS) protection service.
(a) Amazon Cognito (b) AWS KMS
(c) **AWS Shield** (d) Amazon EC2
- _____ is used to assess, audit, and evaluate the configurations of AWS resources.
(a) **AWS Config** (b) AWS Artifact
(c) AWS Shield (d) AWS KMS
- _____ proactively protect personally identifiable information (PII) and know when it moves.
(a) Amazon Inspector (b) Amazon GuardDuty
(c) AWS Shield (d) **Amazon Macie**
- _____ provides access to security and compliance reports.
(a) AWS Config (b) **AWS Artifact**
(c) AWS Shield (d) AWS KMS
- _____ define standards and best practices for your applications and validate adherence to these standards.
(a) **Amazon Inspector** (b) Amazon GuardDuty
(c) AWS Shield (d) Amazon Macie
- _____ is intelligent threat detection and continuous monitoring to protect your AWS accounts and workloads.
(a) Amazon Inspector (b) **Amazon GuardDuty**
(c) AWS Shield (d) Amazon Macie
- IPV6 address consists of how many bits?
(a) 124 bits (b) 126 bits (c) **128 bits** (d) 132 bits

8. One can change the address range after the creation of the Virtual Private Cloud.
- (a) True (b) False
9. _____ is a networking connection between two VPCs that enables you to route traffic between them privately.
- (a) VPC Sharing (b) VPC Peering
(c) AWS Direct Connect (d) VPC Endpoint
10. _____ is a virtual device that enables you to privately connect your VPC to supported AWS services and VPC endpoint services that are powered by AWS PrivateLink.
- (a) VPC Sharing (b) VPC Peering
(c) AWS Direct Connect (d) VPC Endpoint
11. _____ enables you to establish a dedicated, private network connection between your network and one of the DX locations.
- (a) Site-to-Site VPN (b) AWS Direct Connect
(c) VPC Sharing (d) VPC Peering
12. With Amazon VPC, what is the smallest size subnet you can have in a VPC?
- (a) /24 (b) /30 (c) /28 (d) /26
13. Which security control can be applied at the subnet layer of a VPC? [Mid 2]
- (a) Web Application Firewall (b) Firewall
(c) Network ACL (d) Security Group
14. If your project requires monthly reports that iterate through very large amounts of data, which EC2 purchasing option should you consider?
- (a) Spot Instances (b) Scheduled Reserved Instances
(c) Dedicated Hosts (d) On-demand Instances
15. You want to manage the Elastic Container Service (ECS) cluster that runs the containers. What will you use?
- (a) ECS cluster backed by EC2 (b) ECS cluster backed by Fargate
(c) Both a and b (d) None of the given option
16. Which two of the following options must be specified when launching a new EC2 Windows instance?
- (a) Amazon Machine Image (AMI) (b) Amazon EC2 Instance Type
(c) Password for the administrator account (d) Amazon EC2 Instance ID

17. True or False? You can enable hibernation on an existing instance that did not originally have hibernation enabled.

- (a) True (b) False

18. “Accelerated Computing” instance type is used for:

- (a) High Performance Computing (b) In-memory databases
(c) Machine Learning (d) Distributed File Systems

19. Elastic Network Adapter (ENA) supports network speeds up to:

- (a) 1 Gbps (b) 10 Gbps
(c) 100 Gbps (d) None of the given option

20. True or False? Per second billing is available for on-demand instances, reserved instances, and spot instances that run Windows server.

- (a) True (b) False

Question # 2: [2 marks, CLO # 2]

Write down the binary of IP: 192.168.20.2.

11000000.10101000.00010100.00000010

Question # 3: [2 marks, CLO # 2]

Consider a subnet x.x.x.x/27. How many hosts can be connected in this subnet?

27 Hosts can be connected in the subnet.

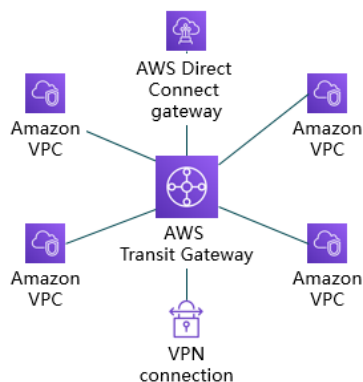
Question # 4: [2 marks, CLO # 2]

Provide the cost information flow.

EC2 Instance => CloudWatch => Cost Explorer => Budget.

Question # 5: [2 marks, CLO # 2]

Draw the basic architecture of AWS Transit Gateway.



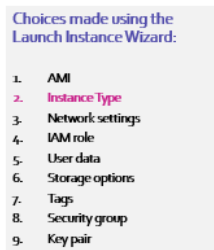
Question # 6: [4 marks, CLO # 2]

Differentiate between Security Group and Access Control List (ACL) in terms of scope, supported roles, state, and order of rules.

Attribute	Security Groups	Network ACLs
Scope	Instance level	Subnet level
Supported Rules	Allow rules only	Allow and deny rules
State	Stateful (return traffic is automatically allowed, regardless of rules)	Stateless (return traffic must be explicitly allowed by rules)
Order of Rules	All rules are evaluated before decision to allow traffic	Rules are evaluated in number order before decision to allow traffic

Question # 7: [3 marks, CLO # 2]

Name the nine steps involved in the launching of EC2 instance.



Question # 8: [5 marks, CLO # 2]

Give answers to the following.

- Between EC2 or Amazon RDS, which provides a managed service? What does managed service mean?
Amazon RDS provides a managed service. Amazon RDS handles provisioning, installation and patching, automated backups, restoring snapshots from points in time, high availability, and monitoring.
- Name at least one advantage of deploying Microsoft SQL Server on Amazon EC2 instead of Amazon RDS.
Amazon EC2 offers complete control over every configuration, the OS, and the software stack.
- What advantage does the Quick Start provide over a manual installation on Amazon EC2?
The Quick Start is a reference architecture with proven best practices built into the design.
- Which deployment option offers the best approach for all use cases?
Neither. The correct deployment option depends on your specific needs.
- Which approach costs more (in terms of time and money): using Amazon EC2 or using Amazon RDS?
It depends. Managing the database deployment on Amazon EC2 requires more customer oversight and time. If time is your priority, then Amazon RDS might be less expensive. If you have in-house expertise, Amazon EC2 might be more cost-effective.