Google Cloud Computing

(Jul-Oct 2024)

Assignment- Week 5
TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10**   Total mark: **10 X 1 = 10**

QUESTION 1:

If a host on a network has the address 172.16.45.14/30, what is the subnetwork this host belongs to?

a) 172.16.45.0
b) 172.16.45.4
c) 172.16.45.8
d) 172.16.45.12

Correct Answer: (d)

Detailed Solution: A /30, regardless of the class of address, has a 252 in the fourth octet. This means we have a block size of 4 and our subnets are 0, 4, 8, 12, 16, etc. Address 14 is obviously in the 12 subnet.

QUESTION 2:

Consider following statements and select the correct options:

1) In auto subnet mode range of addresses are expandable upto /16 only.

2) Custom subnet mode comes with predefined IP ranges.

a) Only 1 is true.
b) Only 2 is true.
c) Both are true.
d) Both are false.

Correct Answer: (a)

Detailed Solution: In custom subnet mode we have complete control over subnet and IP ranges.

QUESTION 3:

Match the following.

Protocol	Length in number of bits
1. UDP Header's port number	A. 48

2. Ethernet MAC address	B. 8
3. IPv6 Next Header	C. 32
4. TCP Header's Sequence number	D. 16

a) 1-C 2-D 3-B 4-A
b) 1-B 2-A 3-D 4-C
c) 1-D 2-A 3-B 4-C
d) 1-D 2-A 3-C 4-B

Correct Answer: (c)

Detailed Solution: UDP Header's port number is 16 bit long integer whereas Ethernet MAC address is 48 bit, IPv6 next header is 8 bit and TCP Header's Sequence number is 32 bit long

QUESTION 4:

What of the following are various types of routing algorithms?
a) Non-adaptive Algorithm.
b) Adaptive Algorithm.
c) Accumulative Algorithm.
d) Hybrid Algorithm.

Correct Answer: (a), (b), and (d)

Detailed Solution: The routing algorithms can be classified as Adaptive Algorithms, Non-Adaptive Algorithms and Hybrid Algorithms. Adaptive algorithms are the algorithms that change their routing decisions whenever network topology or traffic load changes. Non adaptive algorithms are the algorithms that do not change their routing decisions once they have been selected. Hybrid algorithms are a combination of both adaptive and non-adaptive algorithms. In this approach, the network is divided into several regions, and each region uses a different algorithm.

QUESTION 5:

Packet filtering firewalls are vulnerable to _____.
a) Hardware vulnerabilities
b) MiTM
c) Phishing
d) Spoofing

Correct Answer: (d)

Detailed Solution: One disadvantage of packet filtering is it is spoofing-attack prone.

QUESTION 6:

What is a VPC (Virtual Private Cloud) network?
a) A physical network infrastructure that connects multiple data centers.

b) A virtual network that provides isolation and control over cloud resources.

c) A network protocol used for secure communication between servers.

d) A cloud service provided by Google Cloud Platform.

Correct Answer: (b)

Detailed Solution: A VPC network is a virtualized network environment within a public cloud platform, such as Google Cloud Platform (GCP). It enables users to create and manage their own isolated virtual networks, complete with subnets, IP addresses, and routing rules.

QUESTION 7:

Which of the following is a characteristic of VPC peering in cloud environments?

a) Allows direct network access to instances across different regions.

b) Automatically routes traffic between peered VPCs without needing route table modifications.

c) Requires each VPC to be in the same region to establish peering.

d) Provides low-latency, high-bandwidth connection between peered VPCs.

Correct Answer: (d)

Detailed Solution: VPC peering provides a low-latency, high-bandwidth connection between peered VPCs, enabling efficient and high-speed data transfer. It does not require VPCs to be in the same region (as inter-region VPC peering is supported), and route table modifications are necessary to route traffic between peered VPCs. Additionally, VPC peering does not inherently allow direct network access to instances across different regions without proper configuration.

QUESTION 8:

"A hybrid cloud combines multiple public clouds from different providers."

The above statement is:

a) True

b) False

Correct Answer: (b)

Detailed Solution: A hybrid cloud refers to an environment that combines both public cloud and private cloud infrastructure. It involves the integration of on-premises infrastructure with one or more public cloud providers. The public cloud can be from a single provider or multiple providers, but it does not specifically refer to combining multiple public clouds from different providers.

QUESTION 9:

Which interconnection option provides a direct physical link between on-premises infrastructure and a public cloud provider?
a) Virtual Private Network (VPN)
b) Direct Connect
c) Internet peering
d) Cloud Load Balancer

Correct Answer: (b)

Detailed Solution: Direct Connect is the interconnection option that provides a direct physical link between on-premises infrastructure and a public cloud provider. It establishes a dedicated, private network connection between the on-premises data center and the public cloud provider's data center. This dedicated connection offers higher bandwidth, lower latency, and increased security compared to a virtual private network (VPN) over the internet.

QUESTION 10:

Which load balancing option operates at the Transport layer (Layer 4) of the OSI model?
a) Network Load Balancer
b) HTTP(S) Load Balancer
c) Internal TCP/UDP Load Balancer
d) SSL Proxy Load Balancer

Correct Answer: (c)

Detailed Solution: The Internal TCP/UDP Load Balancer is a regional load balancer provided by Google Cloud Platform (GCP) that distributes incoming traffic to backend instances based on transport layer protocols such as TCP or UDP. It uses the source IP address and port, as well as the destination IP address and port, to make load balancing decisions.