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1. Online gaming is an example of ---------- model.
   SaaS (Software as a Service).

2. -------is a fake message or repeated communication request (not directly related to cloud computing, but relevant to online services).
   Spam

3. ---------is not a feature of network design.
   Security

4. ---------is a popular Virtualization technology.
   VMware

5. Some called ---------- a node provides.
   Gate Way

6. Sending and receiving traditionally required a----------.
   physical connection

7. The ----------is responsible for host-to-host communication.
   Network layer

8. In IPV4 addresses, ----------are used as separators.

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Class D

9. Enhanced Data Rates for GSM Evolution (EDGE) is a -------- cellular technology.
   3G

10. In ---------technology, a single host can be shared among multiple instances of operating systems.
    Virtualization

11. A virtual cluster consists of several virtual machine hosts on a --------cluster.
    physical

12. ----------is the ability of a computer system to recover from a failure.
    Resilience

13. SaaS cloud service providers ----------interface.
    user

14. IaaS consumers have the duty of installing----------.
    Operating System

15. The consumers of cloud computing are under a legal cover of----------.
    SLAs (Service Level Agreements)

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16.----------is a markup language that defines the API of a web service.

WSDL (Web Services Description Language)

17.A ----------is the smallest unit of data that is individual.

Bit

Questions:

Q1: Essential Characteristics according to NIST definition:

i. Resource pooling
ii. Rapid elasticity
iii. On-demand self-service
iv. Broad network access
v. Measured service

Q2: Important Benefits of Cluster Computing:

i. Scalability
ii. High availability and fault tolerance
iii. Use of commodity computers (Widely available/affordable)

Q3: **Service Models according to NIST definition:**

i. Infrastructure as a Service (IaaS)

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ii. Platform as a Service (PaaS)
iii. Software as a Service (SaaS)

Q4: Cloud Deployment Models according to NIST definition:

i. Private cloud
ii. Community cloud
iii. Public cloud
iv. Hybrid cloud

Q5: Servers are available in a variety of sizes and types:

i. Web server
ii. Domain Name Server (DNS)
iii. Database server

Q6: Two common types of switched networks are:

i. Packet-Switched Network
ii. Circuit-Switched Network

Q7: TCP/IP Protocol Stack Layers:

i. Application
ii. Transport
iii. Network
iv. Data-link
v. Physical

Q8: **Main protocols of Transport Layer are:**

i. Transmission Control Protocol (TCP)

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ii. User Datagram Protocol (UDP)

Q9**: IP Addressing**

IPv4 is a 32 bit universally unique address while IPv6 is the 128 bit universally unique address.

- Total IPv4 addresses = 2 ^32
- Total IPv6 addresses = 2^128

Q10:

Classification of IPv4 addresses:

	Bits For Network ID	Total Networks	Network ID Starts With	First Byte
Class A	8	2^7	'0' binary	0 to 127
Class B	16	2^{14}	'10' binary	128 to 191
Class C	24	2^{21}	'110' binary	192 to 223
Class D	Used for multicasting and No prefix or Network ID			224 to 239
Class E	Reserved for future use			240 to 255

Q11:

There are three categories of IPv6 addresses:

Unicast address

- A unique address that identifies only one device or network. It's like a personal phone number that only rings on your phone.

Multicast address

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• A special address that sends data to multiple devices or networks at the same time. It's like a group phone number that rings on multiple phones at once.

Anycast address

• A single address that can be used by multiple devices or networks, but data is only sent to the closest one. It's like a shared phone number that automatically connects you to the nearest available phone.

Q12: **Standard Ethernet types**

i. Bridged
ii. Switched
iii. Full duplex switches

Q13:

Wired LAN vs. Wireless LAN

Wired LAN	Wireless LAN
Medium: Wires	Medium: Air
Physical connection to network	No physical connection to network
Broadcasting and multicasting possible when required	All devices are broadcasting
Hosts are connected through link layer switch	No link layer switch exists
Connection to other networks through router	Connected to other networks through access point (a device that connects a wireless and wired network)

Q14:

Advantages of Switch:

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i. Connecting heterogeneous devices
ii. Collision elimination

Q15: Types of routing

i. Unicast routing
ii. Multicast routing
iii. Connectionless routing
iv. Connection oriented routing

Q16: Virtualization implementation levels:

i. Instruction Set Architecture (ISA) level
ii. Hardware Abstraction level
iii. Operating System Level
iv. Library support level
v. Application level

Q17**: Classes of VM architectures**

i. Hypervisor Architecture
ii. Full-virtualization Architecture
iii. Para-virtualization Architecture

Q18:

Reasons of virtualization:

i. Sharing of resources
ii. Isolation of users of shared resource
iii. Dynamic provisioning of virtual resources is easier than physical resources

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iv. Aggregation of smaller resources into a single big virtual resource
v. Easier management of virtual resources.

Q19:

A VM can be in any of the following states:

i. Powered-off
ii. Suspended
iii. Paused
iv. Powered-on

Q20:

The following options are available for VM migration:

i. Cold migration
ii. Warm migration
iii. Live migration

Q21:

A VM is made of two basic components:

VM state (The processor and RAM contents)

Virtual hard disk (Residing on network storage or on host's hard disk)

Q22:

The data center owner has three major considerations:

i. Assuring Performance and QoS

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ii. Increase resource utilization
iii. Saving costs

Q23: Types of VPN:

i. Site-to-site VPN
ii. Remote-access VPN

Q24:

Business drivers lure the organizations to start using Cloud.

I. IT Capacity Planning
   i. Lead Strategy
   ii. Lag Strategy
   iii. Match Strategy
II. Organizational Agility (Rapidly meet customer demands and expectations & Maintain a continuous competitive advantage)
III. Cost Reduction

Q25:

Types of scaling:

Horizontal scaling

Vertical scaling

Q26: Security issues of Cloud Computing:

i. Insufficient monitoring and audit
ii. Lack of security policies
iii. Unauthorized access
iv. No trust of data deletion

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v. Backup vulnerabilities

Q27: Types of Cloud usage monitors:

Monitoring Agent

Resource Agent

Polling Agent

Q28:

The agreement has two parts:

Service Agreement

Service Level Agreement (SLA)

Q29:

Major goals of a Cloud platform can be:

Virtualization

Scalability

Efficiency

Reliability

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Q30:

Cluster Computing v/s Grid Computing

Cluster Computing	Grid Computing
Computers are located close to each other.	Computers may be located at a huge distance from one another.
Computers are connected by a high speed local area network bus.	Computers are connected using a low speed bus or the internet.
Computers are connected in a centralized network topology.	Computers are connected in a distributed or de-centralized network topology.

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