



1.0 Cloud Architecture and Design

1.1 Compare and contrast the different types of cloud models.

- **Deployment models**
 - Public
 - Private
 - Hybrid
 - Community
 - Cloud within a cloud
 - Multicloud
 - Multitenancy
- **Service models**
 - Infrastructure as a Service (IaaS)
 - Platform as a Service (PaaS)
 - Software as a Service (SaaS)
- **Advanced cloud services**
 - Internet of Things (IoT)
 - Serverless
 - Machine learning/ Artificial intelligence (AI)
- **Shared responsibility model**

1.2 Explain the factors that contribute to capacity planning.

- **Requirements**
 - Hardware
 - Software
 - Budgetary
 - Business need analysis
- **Standard templates**
- **Licensing**
 - Per-user
 - Socket-based
 - Volume-based
 - Core-based
 - Subscription
- **User density**
- **System load**
- **Trend analysis**
 - Baselines
 - Patterns
 - Anomalies
- **Performance capacity planning**

1.3 Explain the importance of high availability and scaling in cloud environments.

- **Hypervisors**
 - Affinity
 - Anti-affinity
- **Oversubscription**
 - Compute
 - Network
 - Storage
- **Regions and zones**
- **Applications**
- **Containers**
- **Clusters**
- **High availability of network functions**
 - Switches
 - Routers
 - Load balancers
 - Firewalls
- **Avoid single points of failure**
- **Scalability**
 - Auto-scaling
 - Horizontal scaling
 - Vertical scaling
 - Cloud bursting



1.4 Given a scenario, analyze the solution design in support of the business requirements.

• Requirement analysis

- Software
- Hardware
- Integration
- Budgetary
- Compliance
- Service-level agreement (SLA)
- User and business needs
- Security
- Network requirements
 - Sizing
 - Subnetting
 - Routing

• Environments

- Development
- Quality assurance (QA)
- Staging
- Blue-green
- Production
- Disaster recovery (DR)

• Testing techniques

- Vulnerability testing
- Penetration testing
- Performance testing
- Regression testing
- Functional testing
- Usability testing