Ofqual QAN	610/6138/4
Quartz ID	2239
Qualification	Level 2 Diploma in Computing

Unit ID	2340
Assessment	Cloud Computing
Assessment Type	Local Examination
Assessment Cycle	Sample Examination

Marking Scheme

This marking scheme has been prepared as a **guide only** to markers. This is not a set of model answers, or the exclusive answers to the questions, and there will frequently be alternative responses which will provide a valid answer. Markers are advised that, unless a question specifies that an answer be provided in a particular form, then an answer that is correct (factually or in practical terms) **must** be given the available marks.

If there is doubt as to the correctness of an answer, the relevant NCC Education materials should be the first authority.

SECTION A - Multiple Choice Question **Circle ONE (1) correct answer from A, B, C, or D for each question.** **Each question is worth 1 mark.**

Question 1

Cloud computing services are typically accessed via:

A USB drives

B Local servers only

C The internet using standard devices

D Satellite phones

1 mark

Mark Scheme
C - The internet using standard devices

Question 2

A school needs to provide students with access to learning materials from home and school. Which benefit of cloud computing supports this need?

A Broad network access

B Physical storage expansion

C Local-only access

D Manual file sharing

1 mark

Mark Scheme
A - Broad network access

Question 3

Which cloud model provides a complete development and deployment environment in the cloud?

A DaaS

B IaaS

C PaaS

D SaaS

1 mark

Mark Scheme
C - PaaS

Question 4

Which of the following is an example of Software as a Service (SaaS)?

A   Amazon EC2   **B**   Google Docs

C   Salesforce   **D**   Microsoft Azure

1 mark

Mark Scheme
B - Google Docs

Question 5

Which of the following best describes an advantage of PaaS for software developers?

A   It eliminates the need for coding   **B**   It provides access to physical servers

C   It includes office productivity tools   **D**   It simplifies deployment and scaling of applications

1 mark

Mark Scheme
D - It simplifies deployment and scaling of applications

Question 6

Which trend is most likely to reduce the environmental impact of cloud data centres?

A   Increasing the number of physical servers   **B**   Using renewable energy sources

C   Running servers at full capacity 24/7   **D**   Avoiding virtualization technologies

1 mark

Mark Scheme
B - Using renewable energy sources

Question 7

Which of the following best describes a public cloud?

A	A cloud environment used exclusively by one organisation	**B**	A cloud infrastructure shared by several organisations with common concerns
C	A cloud service offered over the internet and available to anyone	**D**	A cloud system that runs entirely on a local network

1 mark

Mark Scheme
C - A cloud service offered over the internet and available to anyone

Question 8

Which of the following is a common challenge of private cloud environments?

A	Limited customisation	**B**	High dependency on third-party providers
C	Higher setup and maintenance costs	**D**	Lack of data security

1 mark

Mark Scheme
C - Higher setup and maintenance costs

Question 9

A government agency needs to store highly sensitive data and maintain full control over its infrastructure. Which cloud deployment model is most suitable?

A	Community Cloud	**B**	Hybrid Cloud
C	Private Cloud	**D**	Public Cloud

1 mark

Mark Scheme
C - Private Cloud

Question 10

Which component of cloud architecture is responsible for managing and automating the deployment of applications and services?

A	Hypervisor	**B**	Orchestration tools
C	Firewall	**D**	Content delivery network (CDN)

1 mark

Mark Scheme
B - Orchestration tools

Question 11

Which of the following is a good practice for designing an efficient cloud solution?

A	Using auto-scaling and monitoring tools	**B**	Manually scaling resources
C	Ignoring usage metrics	**D**	Deploying updates without testing

1 mark

Mark Scheme
A - Using auto-scaling and monitoring tools

Question 12

Which cloud architecture pattern is designed to bring computing resources closer to the data source or user?

A	Centralised computing	**B**	Monolithic architecture
C	Edge computing	**D**	Grid computing

1 mark

Mark Scheme
C - Edge computing

Question 13

What is a typical use case for cold storage in the cloud?

A	Running virtual machines	**B**	Real-time video streaming
C	Frequently accessed website content	**D**	Long-term data archiving and backups

1 mark

Mark Scheme
D - Long-term data archiving and backups

Question 14

Which principle ensures that users can access their cloud-stored data from any device with internet access?

A   Data encryption

B   Remote accessibility

C   Data compression

D   Local hosting

1 mark

Mark Scheme
B - Remote accessibility

Question 15

What is a common challenge associated with cloud storage?

A   Inability to access data remotely

B   Risk of data breaches and security concerns

C   Lack of storage options

D   No need for internet connectivity

1 mark

Mark Scheme
B - Risk of data breaches and security concerns

Question 16

Which component is responsible for managing virtual machines on a physical server?

A   Load balancer

B   Hypervisor

C   Firewall

D   API gateway

1 mark

Mark Scheme
B - Hypervisor

Question 17

Why is physical security important in a data centre?

A   To prevent overheating

B   To reduce electricity costs

C   To protect sensitive data and equipment from unauthorised access

D   To improve internet speed

1 mark

Mark Scheme
C - To protect sensitive data and equipment from unauthorised access

Question 18

Which of the following best describes a container in cloud computing?

A   A physical storage unit for servers

B   A virtual machine with its own operating system

C   A lightweight, portable package that includes an application and its dependencies

D   A backup system for cloud data

1 mark

Mark Scheme
C - A lightweight, portable package that includes an application and its dependencies

Question 19

Which of the following is one challenge of using virtualisation?

A   It eliminates the need for operating systems

B   It can introduce performance overhead

C   It reduces flexibility in resource allocation

D   It requires no technical knowledge

1 mark

Mark Scheme
B - It can introduce performance overhead

Question 20

Which renewable energy source is commonly used to power sustainable data centres?

A   Coal

B   Natural gas

C   Solar energy

D   Diesel generators

1 mark

Mark Scheme
C - Solar energy

Question 21

Which of the following is a common challenge when migrating data to the cloud?

A	Too much physical storage space	**B**	Lack of internet access
C	Data security and compliance concerns	**D**	Inability to access cloud services remotely

1 mark

Mark Scheme
C - Data security and compliance concerns

Question 22

Which of the following "R" strategies involves moving an application to the cloud with minimal changes?

A	Replatform	**B**	Retire
C	Rehost	**D**	Refactor

1 mark

Mark Scheme
C - Rehost

Question 23

Which of the following is a key benefit of cloud automation?

A	Increased manual workload	**B**	Higher risk of human error
C	Faster and more consistent deployment of services	**D**	Reduced use of cloud services

1 mark

Mark Scheme
C - Faster and more consistent deployment of services

Question 24

What is the main goal of cloud cost management?

A To increase spending on cloud services

B To eliminate the need for budgeting

C To monitor, control, and optimize cloud expenses

D To avoid using cloud services altogether

1 mark

Mark Scheme
C - To monitor, control, and optimize cloud expenses

Question 25

Which of the following is a bad practice in cloud migration?

A Migrating without involving key stakeholders

B Testing applications in the new environment

C Monitoring performance after migration

D Using automation tools for deployment

1 mark

Mark Scheme
A - Migrating without involving key stakeholders

Question 26

Which of the following is a potential consequence of poor cloud security practices?

A Faster data processing

B Reduced internet usage

C Financial loss and reputational damage

D Increased collaboration and reduces latency

1 mark

Mark Scheme
C - Financial loss and reputational damage

Question 27

Why is data encryption important for privacy in cloud services?

A It speeds up internet access and enable faster data processing

B It reduces the size of files

C It protects data from unauthorised access during storage and transmission

D It deletes old data automatically and runs background processes

1 mark

Mark Scheme
C - It protects data from unauthorized access during storage and transmission

Question 28

What is multi-factor authentication (MFA)?

A A way to store passwords in the cloud

B A method of logging in using only a username

C A security process that requires two or more verification methods

D A tool for creating user accounts and store passwords in the cloud

1 mark

Mark Scheme
C - A security process that requires two or more verification methods

Question 29

Which IAM feature allows grouping users and assigning permissions collectively?

A Encryption

B User roles

C Firewalls

D Load balancing

1 mark

Mark Scheme
B - User roles

Question 30

Which of the following is an example of a data protection regulation?

A   HTML   **B**   GDPR

C   HTTPS   **D**   USB

1 mark

Mark Scheme
B - GDPR

End of paper

Learning Outcomes Matrix

Question	Learning Outcomes assessed
1	1
2	1
3	1
4	1
5	1
6	1
7	2
8	2
9	2
10	3
11	3
12	3
13	4
14	4
15	4
16	5
17	5
18	5
19	5
20	5
21	6
22	6
23	6
24	6
25	6
26	7
27	7
28	7
29	7
30	7

Grade Descriptors

Learning Outcome	Fail	Pass	Merit	Distinction
Understand the key characteristics, benefits and evolving developments in cloud computing.	Demonstrates limited or no understanding of cloud computing. Key characteristics are missing or misunderstood. Struggles to identify or explain benefits. Explanations are unclear or incorrect. Does not mention or misunderstands evolving developments of cloud computing.	Demonstrates a basic understanding of cloud computing with some inaccuracies. Only a few characteristics are identified or explained. Identifies a few benefits with limited explanation or examples. Mentions at least one development with basic explanation. Limited awareness of current trends.	Demonstrates a good understanding of cloud computing with minor inaccuracies or omissions. Most key characteristics are explained clearly. Explains several cloud benefits with some supporting examples. May lack depth in explanation. Discusses some recent cloud computing developments with reasonable understanding. May lack depth or currency.	Demonstrates a comprehensive understanding of cloud computing characteristics (e.g., scalability, on-demand self-service, broad network access, resource pooling, rapid elasticity). Clearly explains cloud benefits (e.g., cost-efficiency, flexibility, disaster recovery, collaboration). Provides relevant examples and context. Insightfully discusses recent trends and developments (e.g., edge computing, AI integration, serverless computing, sustainability). Shows awareness of current industry direction.

Compare and explain the significance of cloud deployment models and how they impact business solutions.	Demonstrates limited or incorrect understanding of deployment models. Provides little or no comparison of deployment models. May list models without analysis. Fails to explain or incorrectly explains the impact on business.	Demonstrates a basic understanding of some deployment models. May confuse features or omit key models. Provides a basic comparison of deployment models with limited analysis or depth. Mentions some business impacts but lacks clarity or relevance. Few or no examples provided.	Demonstrates a good understanding of most deployment models with minor inaccuracies or omissions. Provides a reasonable comparison of deployment models with some analysis of differences and use cases. Explains the impact on business with some relevant examples. May lack depth or clarity in some areas.	Demonstrates a comprehensive understanding of all major cloud deployment models (Public, Private, Hybrid, Community). Accurately describes their features and purposes. Provides a detailed and insightful comparison of deployment models, clearly highlighting differences, advantages, and limitations. Clearly and effectively explains how each model influences business decisions (e.g., cost, security, scalability, compliance). Uses relevant examples or scenarios.
Recognise the basic components of cloud architecture and describe how they work together to deliver cloud services.	Identifies few or no components of cloud architecture. Understanding is unclear or incorrect. Provides little or no explanation of component functions. Fails to describe or incorrectly describes how	Identifies some components of cloud architecture but may confuse their roles or omit important ones. Provides basic explanations with limited clarity or accuracy. Some terminology may be incorrect. Mentions component	Identifies most key components of cloud architecture with minor omissions or inaccuracies. Explains most component functions with reasonable clarity. May lack depth or precision in some areas.	Accurately identifies all key components of cloud architecture (e.g., front-end, back-end, cloud storage, virtualisation, networking, middleware). Provides clear and detailed explanations of each component's role

Cloud Computing

	components work together.	interaction but lacks depth or clarity. May show limited understanding of system integration.	Describes how components interact with some clarity. May miss some connections or oversimplify.	in cloud service delivery. Insightfully describes how components work together to deliver cloud services. Demonstrates understanding of system flow and dependencies.
Discuss cloud storage technologies along with their benefits, challenges, and good practices for implementation.	Demonstrates limited or incorrect understanding of cloud storage technologies. Struggles to identify or explain cloud storage benefits. Explanations are unclear or incorrect. Fails to mention or incorrectly explains challenges. Provides little or no understanding of good practices.	Demonstrates a basic understanding of some storage types. May confuse features or omit key types. Identifies a few cloud storage benefits with limited explanation or examples. Mentions at least one challenge with basic explanation. Limited awareness of implications. Mentions a few practices with limited explanation or relevance.	Demonstrates a good understanding of most storage types with minor inaccuracies or omissions. Explains several cloud storage benefits with some supporting examples. May lack depth in explanation. Discusses some challenges with reasonable understanding. May lack depth or clarity in some areas. Outlines some good practices with reasonable clarity. May lack detail or examples.	Demonstrates a thorough understanding of various cloud storage types (e.g., object, block, file storage). Accurately explains how they work and their use cases. Clearly explains multiple clod storage benefits (e.g., scalability, accessibility, cost-efficiency, backup and recovery). Uses relevant examples. Insightfully discusses key challenges (e.g., data security, latency, compliance, vendor lock-in). Clearly outlines good practices (e.g., encryption, access control, regular backups, compliance checks).

Understanding how virtualisation and data centres enable cloud computing.	Demonstrates limited or incorrect understanding of virtualisation. Provides little or no understanding of data centres or their role in cloud computing. Fails to connect virtualisation and data centres or explains them incorrectly.	Demonstrates a basic understanding of virtualisation concepts. May confuse terms or provide limited explanation. Provides a basic explanation of data centres. May omit key functions or features. Mentions both virtualisation and data centres concepts but does not clearly explain how they work together.	Demonstrates a good understanding of virtualisation concepts with minor inaccuracies. Explains the role of virtualisation in cloud computing. Explains the role of data centres with some clarity. May lack detail or depth. Describes the connection between virtualisation and data centres with reasonable clarity.	Demonstrates a thorough understanding of virtualisation concepts (e.g., hypervisors, virtual machines, containers). Clearly explains how virtualisation supports cloud computing. Clearly explains the role of data centres in cloud computing, including infrastructure, scalability, and resource management. Effectively describes how virtualisation and data centres work together to deliver cloud services. Shows clear understanding of their interdependence.
Understand the key principles for successful cloud migration, management and automation.	Demonstrates limited or incorrect understanding of cloud migration. Provides little or no understanding of cloud management. Demonstrates limited or incorrect understanding of automation in cloud environments.	Demonstrates a basic understanding of migration. May confuse strategies or omit key steps. Mentions some cloud resource management principles with limited explanation or relevance. Demonstrates a basic understanding of	Demonstrates a good understanding of migration strategies with minor gaps in detail or clarity. Explains most cloud resource management principles with reasonable clarity. May lack depth or examples. Demonstrates a good	Demonstrates a clear and detailed understanding of cloud migration strategies (e.g., rehosting, refactoring, replatforming). Clearly explains principles of cloud resource management (e.g., monitoring, cost optimisation, governance, security).

		automation. May lack clarity or confuse concepts.	understanding of automation with some relevant examples.	Demonstrates strong understanding of automation tools and practices (e.g., Infrastructure as Code, auto-scaling, CI/CD). Explains how automation improves efficiency and reliability.
Discuss the core ethical, legal and security issues inherent in cloud computing.	Fails to identify or incorrectly explains ethical issues. Demonstrates little or no understanding of legal considerations. Fails to identify or incorrectly explains security issues. Fails to connect the ethical, legal, and security issues concepts or explains them incorrectly.	Mentions some ethical concerns but with limited explanation or relevance. Mentions legal issues but lacks clarity or detail. Identifies basic security concerns with limited explanation. Mentions ethical, legal, and security issues but does not clearly explain how they relate.	Identifies and explains several ethical issues with reasonable clarity. May lack depth or nuance. Explains some legal aspects with minor inaccuracies or omissions. Explains most security issues with some relevant examples. May lack depth in some areas. Makes reasonable connections between ethical, legal, and security issues. May lack depth or clarity in integration.	Insightfully discusses key ethical concerns (e.g., data ownership, surveillance, digital rights). Demonstrates critical thinking and awareness of real-world implications. Thoroughly explains core security concerns (e.g., data breaches, encryption, access control). Effectively connects ethical, legal, and security issues, showing how they influence cloud computing practices.