Module 2 Challenge 2 - Answers with Explanations

1. What does data integration in the cloud involve?

- Separating data from different sources into multiple data sources
- Splitting data from a single data source into separate chunks of data
- Distributing data from a single source into multiple data sources
- **Combining data from different sources into a single, usable data source**

Explanation: Data integration merges data from various sources into one unified view for analysis.

2. What does the term “network use” refer to in the context of cloud expenses?

- The computing power used to run queries over time
- The amount of data kept in storage
- The amount of data processed during query processes
- **The amount of data that is read or moved between storage buckets**

Explanation: Network use refers to data transfer between storage locations, which incurs costs.

3. A manufacturing company is facing challenges like unpredictable demand fluctuations and supply chain disruptions. Which benefit of cloud data analytics would be most helpful for this company?

- Making it easier for customers to describe project requirements
- **Making sure manufacturers produce exactly what their customers want**
- Evaluating customer feedback of the manufacturer’s products
- Improving the consistency of data from the supply chain

Explanation: Cloud analytics helps align production with customer demand using real-time data.

4. An organization wants to automatically adjust its computing resources to meet user demands. What cloud cost optimization strategy should they use?

- Reserved instances
- Rightsizing
- **Auto-scaling**
- Cost visibility

Explanation: Auto-scaling dynamically adjusts resources based on demand, optimizing cost and performance.

5. You are shopping online. You add items to your cart and proceed to checkout. What backend component in cloud architecture enables this experience?

- Infrastructure
- **Application**
- Runtime cloud
- Service

Explanation: Applications handle user interactions and transactions in cloud-based systems.

6. The IT team for a tech company is using several types of tools to support its internal operations. The IT team uses web interfaces, application programming interfaces (APIs), Pub/Sub, Looker, and Jupyter Notebooks. What data tasks would the IT team use these tools to conduct?

- To streamline supply chain systems
- **To access data stored in the cloud**
- To adjust computing resources
- To build on-site storage solutions

Explanation: These tools are used to retrieve, visualize, and analyze cloud-stored data.

7. Stacey regularly runs queries to retrieve, update, or analyze data. Stacey's manager notices that every time they run a query, a bill is generated. What is this bill usually based on?

- **The amount of data processed during the query processes**
- The computing power used to run the query
- The amount of data read or moved between storage buckets
- The amount of data returned after the query is run

Explanation: Query costs are based on the volume of data scanned, not the result size.

8. What data pricing model is based on the computing power used to run queries over time and measured in virtual central processing units, called slots?

- Advanced provisioning
- On-demand
- **Capacity**

- Dynamic provisioning

Explanation: Capacity pricing charges based on reserved compute power over time, measured in slots.

9. A cloud data analyst decides to use the rightsizing cost optimization strategy. What benefit does this strategy provide the analyst?

- It helps to reduce the risk of data breaches for an organization.
- It helps to ensure that the application is running at peak performance.
- It provides a way for an organization to save money on cloud costs.
- **It optimizes the usage of computing resources for an application.**

Explanation: Rightsizing ensures resources match workload needs, avoiding over- or under-provisioning.

10. You are planning to use a cloud service to hold and organize a large amount of data. Which component of cloud architecture will be most involved in this task?

- Application
- Service
- Runtime cloud
- **Storage**

Explanation: Storage is the component responsible for holding and organizing data in the cloud.

11. An organization has a steady demand for compute and storage needs and prefers a more predictable and controllable cost for their queries. Which Google BigQuery pricing model should they choose?

- Variable pricing
- Fixed pricing
- On-demand pricing
- **Capacity pricing**

Explanation: Capacity pricing offers predictable costs for steady workloads by reserving compute power.

12. An organization decides to implement cloud cost optimization. What is the primary goal of cloud cost optimization for the organization?

- To decrease carbon emissions and improve infrastructure effectiveness

- To decrease cloud expenses and increase data effectiveness
- **To enhance workload efficiency and get maximum value from cloud resources**
- To enhance the performance of applications and reduce workload

Explanation: The main goal is to reduce costs while maximizing the efficiency and value of cloud usage.

13. Which of the following Google BigQuery pricing models would be most suitable for users whose compute and storage needs fluctuate based on business priorities?

- Capacity pricing
- Fixed pricing
- **On-demand pricing**
- Dynamic pricing

Explanation: On-demand pricing is ideal for variable workloads, charging per query based on data processed.

14. A tech company is concerned about the privacy of its data stored in the cloud. To ensure the data is private, which backend component should the tech company review?

- Runtime cloud
- Service
- Application
- **Security**

Explanation: Security ensures data protection and privacy in cloud environments.