Question 1

Which of the following networks is used in identifying faces, objects, and traffic signs?

A. Convolutional Neural Networks
B. Deep Neural Networks
C. Recurrent Neural Networks
D. None of the options are correct.

Question 2
Which of the following statement is true about ML systems?

A. It generates a lot of value for the organization, for customers and for end users.
B. Almost every single one has a team of people reviewing the algorithms, reviewing their responses and doing random sub-samples.
C. Almost every single one has a team of people reviewing the algorithms, reviewing their responses and doing random sub-samples and it generates a lot of value for the organization, for customers and for end users.
D. None of the options are correct.

Question 3

Which of the following are facets that differentiate deep learning networks in multilayer networks?

A. More complex ways of connecting layers
B. Cambrian explosion of computing power to train
C. Automatic feature extraction
D. All options are correct.

Question 4
Which of the following statement is incorrect?

A. Machine learning performs some core and numerical tasks
B. Machine learning doesn't serve that task in a website.
C. Machine learning doesn't have unit tests of its own.
D. None of the options are correct.

Machine Learning Development with Vertex AI

Question 1

In Machine learning development, which phase identifies your use case?

    A. Prepare training Data
    B. Experimenting
    C. Framing the problem
    D. Evaluating the Model

Question 2
Typically, ML practitioners train models using different architectures, input data sets, hyperparameters, and hardware. What architectural type would you use for cyber-security, pattern recognition, self-driving cars, and reinforced learning?

    A. Sorting/Clustering
    B. RNNs or Recurrent Neural Networks
    C. CNNs or Convolutional Neural Networks
    D. GANS or Generative Adversarial Networks

Question 3

Which Vertex AI service lets you access data, process data in a Dataproc cluster, train a model, share your results, and more, all without leaving the JupyterLab interface?

    A. Workbench
    B. Datasets
    C. Pipelines
    D. Models

Question 4

Moving from experimentation to production requires packaging, deploying and monitoring your model - which can give you confidence that your model is making useful predictions in production. Monitoring measures key model performance metrics and includes:

    A. Model drift, model performance, model outliers and data quality.
    B. Architectural drift, TPU performance, zone outliers and RNNs.
    C. Architectural drift, TPU hyperparameter performance, zone outliers and RNNs and CNNS.
    D. TPU drift, RNN performance, CPU outliers and data quality.

Question 5

The way you deploy a TensorFlow model is different from how you deploy a PyTorch model, and even TensorFlow models might differ based on whether they were created using AutoML or by means of code. True or False: In the unified set of APIs that Vertex AI provides, you can treat all these models in the same way.

True
False

Question 6
Select the correct word below to fill in the blank: Vertex AI is flexible. You choose your training method. _____ lets you create a training application optimized for your targeted outcome. You have complete control over training application functionality; you can target any objective, use any algorithm, develop your own loss functions or metrics, or do any other customization.

  A. Custom training
  B. AutoML
  C. Custom training and AutoML
  D. Containerized training

Question 7
What is a managed dataset in Vertex AI?

  A. Data loaded into Vertex AI - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.
  B. Data loaded into AutoML Tables - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.
  C. Data loaded into a Pandas Dataframe - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.
  D. Data loaded into Python - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a mode

Machine Learning Development with Vertex Notebooks
Question 1

Fill in the blank: Vertex AI Workbench provides two Jupyter notebook-based options for your data science workflow. _____ are Google-managed environments with integrations and features that help you set up and work in an end-to-end notebook-based production environment.

  A. Managed notebook instances
  B. User Managed notebook instances
  C. UnManaged notebooks and User-defined notebooks
  D. Managed notebooks and already created notebooks

Question 2

Fill in the blank: Vertex AI Workbench provides two Jupyter notebook-based options for your data science workflow. _____ are Deep Learning VM Images instances that are heavily customizable and are therefore ideal for users who need a lot of control over their environment.

A. **User-Managed notebook instances**
B. Managed notebook instances
C. UnManaged notebooks and User-defined notebooks
D. Managed notebooks and already created notebooks

Question 3

Which statement is correct regarding Vertex AI Workbench Notebooks?

A. Both options are pre-packaged with JupyterLab and have a pre-installed suite of deep learning packages, including support for the TensorFlow and PyTorch frameworks.
B. Both options support GPU accelerators and the ability to sync with a GitHub repository.
C. Both options are protected by Google Cloud authentication and authorization.
D. **All of the above are correct.**

Question 5

Where can you find the Cloud Storage and Bigquery extension to browse data?

A. **Left side-bar**
B. Top menu-bar
C. Bottom
D. In the notebook

Question 4

True or False. In a Vertex AI Workbench Jupyter Notebook, you can access your data without leaving the JupyterLab interface.

True

False

Question 6

For users who have specific networking and security needs, _____ can be the best option. You can use VPC Service Controls to set up a _____ within a service perimeter and implement other built-in networking and security features. You can also configure user-managed notebooks instances manually to satisfy some specific networking and security needs.

A. User-Managed notebook instances
B. Managed notebook instances
C. UnManaged notebooks and User-defined notebooks
D. Managed notebooks and already created notebooks

Best Practices for Implementing Machine Learning on Vertex AI

Question 1

The data used to train a model can originate from any number of systems, for example, logs from an online service system, images from a local device, or documents scraped from the web. Which of the following is a Best Practice for Preparing and Storing unstructured data such as images, audio, and video?

A. In Cloud storage
B. In BigQuery
C. In BigTable
D. In Cloud SQL

Question 2

Your dataset is considered small, less than 5,000 rows and around 10MB. You are not using AutoML but a Jupyter Notebook instance. Which of the following is a Best Practice for Training a model with a small dataset?

A. For small datasets, train the model within the notebook instance.
B. For small datasets, train the model using the Vertex AI training service.
C. For small datasets, train the model within the notebook instance and using the Vertex AI training service.
D. For small datasets, train the model within the notebook instance, the Vertex AI training service, and the containerized training service.

Question 3

Which of the following statement is correct for Explainable AI?

A. It offers feature attributions to provide insights into why models generate predictions.
B. It helps you better understand your model's data.
C. It supports only pre-trained models based on tabular and image data.
D. It details the importance of one feature that a model uses as input to make predictions.

Responsible AI Development

Question 1

Human biases lead to bias in machine learning models. Unconscious biases exist in our data and exist in two forms. What are the two forms of unconscious biases in data?

A. There are the human biases that exist in data because data found in "the world" has existing biases with regard to properties like gender, race, and sexual orientation. For example, there may be reporting bias by our subjects because they only choose to reveal certain aspects about themselves or their opinions. We can also run into human biases which arise as part of our data collection and labeling procedures.

B. There are the human biases that exist in data because data found in "data silos" has existing biases with regard to properties like gender, race, and sexual orientation. We can also run into human biases which arise as part of our data collection and labeling procedures.

C. First, there is human bias as a result of reporting, data collection, and labeling. Second, there is human bias as a result of data visualization and analysis.

D. All of the options are correct.

Question 2

The impact of biases in collecting data and labeling data affects the entire machine learning pipeline. The biases in the original data are going to be reflected downstream in our models and consequently are going to result in potentially biased outcomes. You need to create a checklist for situations where you should watch out for bias-related issues. What questions should this checklist include?

A. Does your use case or product specifically use any of the following data: biometrics, race, skin color, religion, sexual orientation, socioeconomic status, income, country, location, health, language, or dialect?

B. Does your use case or product use data that is likely to be highly correlated with any personal characteristics (for example, zip code or other geospatial data is often correlated with socioeconomic status and/or income; image/video data can reveal information about race, gender, and age)?

C. Could your use case or product negatively affect individuals' economic or other important life opportunities?

D. *D: All of the options are correct.

Question 3

Fill in the blank. One of the key tools to help in understanding inclusion and how to introduce inclusion across different kinds of groups across your data is by understanding the _____.

   A. Confusion matrix
   B. Evaluation regression matrix
   C. Sigmoid matrix
   D. DEquality of opportunity matrix

Question 4

Which of the following is an example of a "false negative"?

   A. The label says there is no face, but the model finds a face. Perhaps there is a statue in the image and the model falsely identifies it as a face.

   B. When the label says something exists and the model doesn't predict it—that's a false negative. So, in the face detection example in this lesson, the model says that there is no face in the image—when the image's label says there *is* a face.
   C. The label says there is a face, and the model finds a face.
   D. The label says there is no face, and the model finds no face.

Question 5

Datasets can contain hundreds of millions of data points, each consisting of hundreds (or even thousands) of features, making it nearly impossible to understand an entire dataset in an intuitive fashion. The key here is to utilize visualizations that help unlock nuances and insights in large datasets. Which tool would be most appropriate?

   A. SQL
   B. Firebase
   C. Facets
   D. Pandas

Question 6

Which approach is followed to achieve a better performance across subgroups?
   A. Equality of opportunity
   B. Evaluation metrics
   C. Confusion matrix
   D. None of the options are correct.

Question 7

The confusion matrix helps which of the following?

A. Understanding inclusion and how to introduce inclusion across different subgroups within your data
B. Evaluating performance in machine learning
C. Both of the options are correct.
D. None of the options are correct.