



Vendor: NVIDIA

Exam Code: NCA-GENM

Exam Name: Multimodal Generative AI

Version: DEMO

QUESTION 1

Which technique can be used for transforming color images into grayscale?

- A. Averaging the intensity of color channels
- B. Using histogram equalization
- C. Utilizing image cropping
- D. By performing upsampling

Answer: A

Explanation:

Converting a color image to grayscale can be done by combining the intensity values of the color channels into a single channel. A common method is averaging the red, green, and blue channel values to produce one grayscale intensity value per pixel, resulting in an image that represents brightness without color information.

QUESTION 2

You have been given a dataset with missing values. What is the first step you should take with the data?

- A. Analyze the patterns and distribution of missing values.
- B. Remove the columns with missing values.
- C. Remove the rows with missing values.
- D. Fill in the missing values with a default value.

Answer: A

Explanation:

Before applying any strategy to handle missing data, it is important to understand how the missing values are distributed in the dataset. Analyzing their patterns helps determine whether the missingness is random or systematic and guides the choice of an appropriate handling method such as imputation or removal.

QUESTION 3

You are working with a large dataset and want to visualize the distribution of a continuous variable. Which type of data visualization would be most appropriate?

- A. Pie chart
- B. Bar chart
- C. Line chart
- D. Histogram chart

Answer: D

Explanation:

A histogram is specifically designed to visualize the distribution of a continuous variable by grouping values into bins and showing how frequently values fall within each range. This makes it effective for understanding the shape of the distribution, such as skewness, spread, and the presence of peaks or outliers.

QUESTION 4

You have a dataset containing information about sales performance for different regions in the last ten years. Which type of data visualization would be most appropriate to compare the sales performance across regions on a year-by-year basis?

- A. Bar chart
- B. Scatter plot
- C. Line chart
- D. Pie chart

Answer: C

Explanation:

A line chart is well suited for visualizing changes in values over time. By plotting yearly sales for each region as separate lines, it becomes easy to observe trends, compare performance between regions across years, and identify increases, decreases, or patterns in sales over the ten-year period.

QUESTION 5

What could be a way to handle overfitting in deep learning?

- A. Increase the complexity of the model to fit the training dataset better.
- B. Add regularization techniques such as dropout or L1/L2 regularization.
- C. Increase the training time to fit the training dataset better.
- D. Decrease the size of the training dataset.

Answer: B

Explanation:

Regularization techniques such as dropout and L1/L2 regularization reduce overfitting by constraining how strongly the model can adapt to the training data. These methods discourage the model from memorizing specific patterns in the training set and instead encourage learning more generalizable features that perform well on unseen data.

QUESTION 6

Which technique is commonly used to speed up AI model training and inference on hardware accelerators?

- A. Quantization
- B. Model enlargement
- C. Dropout
- D. Data augmentation

Answer: A

Explanation:

Quantization speeds up training and inference by reducing the numerical precision of model weights and activations, typically from 32-bit floating point to lower-precision formats such as 16-bit or 8-bit. This reduces memory usage and computational requirements, allowing hardware accelerators to process operations faster while maintaining acceptable model performance.

QUESTION 7

Which of the following techniques can NOT be used to optimize energy consumption in machine learning and deep learning workloads?

- A. Applying energy efficiency hyperparameters tuning.
- B. Decreasing the batch size during training.

- C. Using transfer learning to leverage pre-trained models.
- D. Using asynchronous requests to maximize throughput.

Answer: D

Explanation:

Asynchronous requests are primarily used to increase system throughput and improve request handling efficiency in serving environments. This technique focuses on performance and scalability rather than directly reducing the computational workload or training cost, so it is not typically used as a method for optimizing energy consumption in machine learning workloads.

QUESTION 8

What is a common method to reduce the computational cost of deep learning models during inference?

- A. Increasing the batch size.
- B. Adding more convolutional filters.
- C. By replacing activation functions is some neurons with simpler ones.
- D. Pruning weights or neurons.

Answer: D

Explanation:

Pruning reduces computational cost by removing weights, connections, or entire neurons that contribute little to the model's predictions. This results in a smaller and sparser network that requires fewer operations and less memory during inference, improving efficiency while maintaining similar performance.

QUESTION 9

What does mixed-precision training refer to?

- A. Training a model using diverse data types while addressing challenges related to missing or incomplete information.
- B. Training a model using multiple precision levels, such as using both single-precision and double-precision floating-point numbers.
- C. Training a model using incomplete or missing information from different modalities.
- D. Training a model using different types of data, such as text, images, audio, time series, and geospatial information.

Answer: B

Explanation:

Mixed-precision training uses multiple numerical precisions during model training, typically combining lower-precision formats like FP16 with higher-precision formats such as FP32 for certain calculations. This approach reduces memory usage and increases computational throughput on modern GPUs while maintaining numerical stability during training.

QUESTION 10

What is the purpose of the cuDNN library?

- A. To implement GPU-accelerated data preparation and feature extraction.
- B. To optimize deep neural network computations on NVIDIA GPUs.
- C. To generate images from English text-prompts using CLIP.
- D. To measure GPU usage and other metrics with Prometheus.

Answer: B

Explanation:

cuDNN (CUDA Deep Neural Network library) is a GPU-accelerated library developed by NVIDIA that provides highly optimized implementations of deep learning operations such as convolutions, pooling, normalization, and activation functions. It enables deep neural networks to run efficiently on NVIDIA GPUs by optimizing low-level computations used during training and inference.

QUESTION 11

What are some methods to overcome limited throughput between CPU and GPU?

- A. Increase the clock speed of the CPU.
- B. Upgrade the GPU to a higher-end model.
- C. Using techniques like memory pooling.
- D. Increase the number of CPU cores.

Answer: C

Explanation:

Memory pooling reduces the overhead of repeated memory allocation and deallocation between CPU and GPU. By reusing preallocated memory buffers, data transfers and memory management operations become more efficient, which helps mitigate throughput bottlenecks between the CPU and GPU.

QUESTION 12

A tokenizer is used for what purpose?

- A. Transformation of text-based data into numerical representations.
- B. Inspecting, cleansing, and transforming data for learning.
- C. Generating text-based data from the input dataset.
- D. Evaluation of fine-tuned models' performance under different conditions.

Answer: A

Explanation:

A tokenizer converts raw text into smaller units such as tokens and then maps those tokens to numerical identifiers that a machine learning model can process. Since neural networks operate on numbers rather than text, tokenization is a fundamental preprocessing step that enables language models to represent and process textual data during training and inference.

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