## Question 1: What is transfer learning primarily used for in machine learning?

1. To increase the size of the training dataset  
   b) To improve the performance of a model on a new task using knowledge from a related task  
   c) To reduce the complexity of a model  
   d) To eliminate the need for labeled data

**Correct Answer:** b) To improve the performance of a model on a new task using knowledge from a related task

## Question 2: Which of the following scenarios is an example of transfer learning?

1. Training a model from scratch using only local data  
   b) Using a pre-trained image classification model to identify specific objects in a new dataset  
   c) Creating a new algorithm for data preprocessing  
   d) Implementing a reinforcement learning agent in a game environment

**Correct Answer:** b) Using a pre-trained image classification model to identify specific objects in a new dataset

## Question 3: What is one common approach to implement transfer learning?

1. Using only unsupervised learning techniques  
   b) Freezing the weights of early layers in a neural network while training later layers  
   c) Increasing the dropout rate in all layers  
   d) Randomly initializing all weights in the network

**Correct Answer:** b) Freezing the weights of early layers in a neural network while training later layers

## Question 4: How can transfer learning be applied to a model originally trained to recognize the Tamil language for the task of recognizing Urdu?

1. By retraining the entire model from scratch using only Urdu data  
   b) By replacing the output layer of the Tamil model with a new output layer specific to Urdu and fine-tuning it on a small Urdu dataset  
   c) By using the Tamil model without any modifications, as both languages are similar  
   d) By converting the Tamil text to Urdu script and training the model on this converted dataset

**Correct Answer:** b) By replacing the output layer of the Tamil model with a new output layer specific to Urdu and fine-tuning it on a small Urdu dataset This question highlights the practical application of transfer learning in multilingual contexts.

Question 4: How can transfer learning benefit medical applications, particularly in improving diagnostic accuracy and efficiency?

a) By allowing models to be trained only on large datasets without any prior knowledge  
b) By enabling the use of pre-trained models on related tasks to enhance performance on smaller medical datasets  
c) By eliminating the need for any data preprocessing steps  
d) By ensuring that all models are trained from scratch for every new medical task

**Correct Answer:** b) By enabling the use of pre-trained models on related tasks to enhance performance on smaller medical datasets This question highlights the advantages of transfer learning in the context of medical applications, particularly regarding its ability to improve outcomes with limited data.