1. What is the primary challenge addressed by the dual-MAE algorithm in this study?

a) The high cost of pediatric chest X-ray imaging.

b) The lack of skilled radiologists to interpret pediatric chest X-rays.

c) The limited availability of pediatric chest X-ray data.

d) The difficulty in obtaining informed consent from parents of pediatric patients.

Correct Answer: c

2. What is the key innovation introduced in the dual-MAE architecture?

a) A novel convolutional neural network (CNN) architecture.

b) The use of a single encoder and decoder network.

c) The incorporation of online and target networks with encoder and decoder modules.

d) A new method for image segmentation.

Correct Answer: c

3. What datasets were primarily used for pretraining the dual-MAE model?

a) ImageNet and CIFAR-10

b) PediCXR and ChestX-ray14

c) CheXpert and ChestX-ray14

d) MNIST and Fashion-MNIST

Correct Answer: c

4. What is the main performance metric used to evaluate the different models?

a) Accuracy

b) Precision

c) Mean AUC score

d) F1-score

Correct Answer: c

5. Which model achieved the highest mean AUC score in the study?

a) ResNet-34 trained from scratch

b) ViT-S pretrained on ImageNet

c) Vanilla MAE pretrained on adult chest X-rays

d) Dual-MAE pretrained on adult chest X-rays

Correct Answer: d

6. What strategy was employed to mitigate the issue of limited pediatric chest X-ray data?

a) Data augmentation techniques such as rotation and flipping.

b) Using a smaller, more efficient model architecture.

c) Pretraining the model on adult chest X-rays and then fine-tuning on pediatric X-rays.

d) Collecting additional pediatric chest X-ray data from various hospitals.

Correct Answer: c