

FINAL EXAME ()
ADVANCED DEEP LEARNING (A)

ID:G:.....
 NAME:

Exercise 1 : (pts)

Answer the following multiple-choice questions. (PS: +0.75 for correct answer, - 0. 5 for incorrect one.)

Question	Answer
1. Which of the following is NOT a task commonly associated with computer vision? A) Image classification. B) Object detection. C) Image segmentation. D) Speech recognition.	
2. In computer vision, what does the term 'pixel representation' refer to? A) The size of image. B) The color pixel of image. C) The arrangement of pixels in an image. D) The resolution of an image.	
3. What is the main advantage of using deep learning for feature extraction? A) Requires less data. B) Eliminates the need for manual feature engineering. C) Slower training times. D) Limited application scope	
4. What does a convolutional neural network primarily do in image processing? A) Store images in a database. B) Extract features from images. C) Increase image resolution. D) Convert images to audio.	
5. In the context of computer vision, what does 'overfitting' refer to? A) A model performing well on unseen data. B) A model that cannot learn from the training data. C) A model that learns noise from the training data instead of general patterns. D) A model that has too few parameters.	
6. What is a primary application of sequence modeling? A) Image Classification. B) Sentiment Classification. C) Object Detection. D) Data Compression.	
7. Which of the following is NOT mentioned as an application of sequence modeling? A) Image Captioning. B) Machine Translation. C) Binary Classification. D) Video Processing.	
8. In which application might you predict the next word in a sentence? A) Image Captioning. B) Sentiment Classification. C) Machine Translation. D) Time Series Forecasting.	
9. Which of these tasks requires understanding context in language? A) Image Captioning. B) Sentiment Classification. C) Binary Classification. D) Object Detection.	
10. Which optimization algorithm is commonly used to train deep learning models? A) Gradient Descent. B) K-Means Clustering. C) Principal Component Analysis. D) Support Vector Machines	
11. Which of the following is a strategy for transfer learning? A) Data augmentation. B) Inductive transfer learning. C) Data transfer learning. D) Feature extraction.	
12. Which model is commonly used in transfer learning for image classification? A) VGG16. B) VGG265. C) Decision Trees. D) Perceptron transfer	
13. Which of the following is NOT a type of transfer learning? A)Inductive Transfer Learning. B) Unsupervised Transfer Learning. C) Supervised Transfer Learning. D)Transudative Transfer Learning	

<p>14. What is the primary issue when using transfer learning in domains with different feature distributions? A) Increased computational requirements. B) Difficulty in model convergence C) The need for domain adaptation techniques. D) Lack of labeled data</p>	
<p>15. What is the significance of 'class imbalance' in transfer learning applications? A) It has no effect on model performance. B) It is easily corrected by increasing training data C) It can lead to biased predictions towards the majority class. D) It simplifies the training process.</p>	
<p>16. What is self-supervised learning primarily based on? A) Using labels generated from the data itself. B) using Manual labeling of data. C) Supervised learning techniques. D) Reinforcement learning methods</p>	
<p>17. Self-supervised learning helps in training models without what? A) Large datasets. B) Labeled data. C) Neural networks. D) Supervised tasks</p>	
<p>18. Which task Involves modifying or hiding parts of the input? A) Pretext task. B) Classification task. C) Clustering task. D) Regression task</p>	
<p>19. Why is capturing factual knowledge a challenge for models? A) Due to too much labeled data. B) Because of unseen or rare facts in training data. C) Models are too simple. D) Lack of computational power.</p>	
<p>20. What is one proposed solution for reducing bias in models? A) Using larger datasets without documentation. B) Focusing solely on accuracy metrics C) Building datasets more carefully and requiring documentation. D) Ignoring bias during training.</p>	
<p>21. In reinforcement learning, what is the primary goal? A) Minimize errors. B) Maximize future rewards. C) Cluster data points. D) Predict outcomes.</p>	
<p>22. What does the Q-function represent in reinforcement learning? A) The immediate reward. B) The state of the environment. C) The expected total future reward. D) The action taken.</p>	
<p>23. What does the training process of a DQN involve? A) Minimizing the loss function. B) Maximizing the target return. C) Reducing the states number. D) Increasing exploration.</p>	
<p>24. In reinforcement learning, what is meant by 'policy'? A) A set of rules for data processing. B) An algorithm for regression. C) A method for clustering data. D) A strategy used by the agent to decide actions.</p>	
<p>25. What is one advantage of using deep Q networks (DQN)? A) They require less data than traditional methods. B) They can handle high-dimensional state spaces. C) They are easier to implement than other algorithms. D) They do not require exploration strategies.</p>	
<p>26. Which term describes the total reward received after taking an action and transitioning to a new state? A) Immediate reward. B) Discounted reward. C) Expected return. D) Cumulative reward</p>	
<p>27. Which of the following is a common activation function used in deep learning? A) Gradient. B) Step activation. C) ReLU. D) Polynomial.</p>	
<p>28. What is a common challenge when training deep learning models with limited data? A) Overfitting. B) Underfitting. C) Slow convergence. D) High accuracy</p>	