Class Assessment- Deep learning and AI
08-November 2023 T1 and T2 batch

1. Question: What is the purpose of stemming in NLP?
   - a) Identifying named entities
   - **b) Reducing words to their base or root form**
   - c) Classifying text into categories
   - d) Tokenizing sentences

2. Question: What is the basic building block of neural networks?
   - **a) Neuron**
   - b) Weight
   - c) Bias
   - d) Activation Function

3. Question: In a neural network, what is backpropagation used for?
   - a) Forward pass
   - b) Weight initialization
   - **c) Updating weights based on error**
   - d) Activation function selection

4. Question: What is the purpose of the activation function in a neural network?
   - **a) To introduce non-linearity**
   - b) To initialize weights
   - c) To control the learning rate
   - d) To add bias to the network

5. Question: Which neural network architecture is suitable for image recognition?
   - a) Feedforward Neural Network
   - b) Recurrent Neural Network
   - **c) Convolutional Neural Network**
   - d) Radial Basis Function Network

6. Question: What is the purpose of dropout in neural networks?
   - a) Adding noise to the data
   - **b) Regularization to prevent overfitting**
   - c) Increasing the learning rate
   - d) Initializing weights randomly

7. Question: What is the primary operation in a convolutional layer?
   - a) Matrix multiplication
   - b) Addition
   - **c) Convolution**
   - d) Pooling

8. Question: What is the purpose of pooling layers in CNNs?
   - a) Feature extraction
   - **b) Dimensionality reduction**
   - c) Non-linearity introduction
   - d) Weight initialization

9. Question: Which layer is typically used for handling spatial hierarchies in CNNs?
   - **a) Convolutional layer**
   - b) Pooling layer

- c) Fully connected layer
- d) Batch normalization layer

10. Question: What does the term "stride" refer to in a convolutional layer?
- a) Learning rate
- b) Filter size
- **c) Step size for the convolution operation**
- d) Activation threshold

11. Question: In CNNs, what is the purpose of the softmax activation function in the output layer?
- a) Introduce non-linearity
- **b) Normalize the output to probabilities**
- c) Apply dropout
- d) Handle vanishing gradients

12. Question: What is the main advantage of RNNs over traditional neural networks in handling sequential data?
- a) Parallel processing
- **b) Memory of previous inputs**
- c) Non-linearity
- d) Weight sharing

13. Question: What is the vanishing gradient problem in RNNs?
- a) Exploding gradients during training
- b) Gradient becoming too large
- c) Difficulty in training deep networks
- **d) Gradient becoming too small**

14. Question: Which RNN architecture addresses the vanishing gradient problem by allowing gradients to flow more easily through the network?
- a) Elman network
- b) Bidirectional RNN
- **c) Long Short-Term Memory (LSTM)**
- d) Gated Recurrent Unit (GRU)

15. Question: What is the purpose of the hidden state in an RNN?
- a) Make predictions
- **b) Store long-term information**
- c) Control the learning rate
- d) Initialize weights

16. Question: In which scenario is an RNN likely to struggle due to its sequential nature?
- **a) Image classification**
- b) Speech recognition
- c) Text generation
- d) Random number generation

17. Question: What is the purpose of Word Embeddings in NLP?
- a) Syntax analysis
- **b) Semantic representation of words**
- c) Document classification

- d) Named Entity Recognition

18. Question: What is the primary objective of sentiment analysis in NLP?
- a) Identifying named entities
- **b) Classifying emotions expressed in text**
- c) Extracting key phrases
- d) Tokenizing sentences

19. Question: What is the role of the learning rate in training a neural network?
- **a) Control the speed of convergence**
- b) Initialize weights
- c) Define the number of layers
- d) Determine the activation function

20. Question: What is the purpose of the bias term in a neural network?
- a) Introduce non-linearity
- b) Regularize the network
- **c) Adjust the output of each neuron**
- d) Initialize weights