Model Questions

SKR/KW/24/2587/2598/2609/2620

Faculty of Science & Technology
Seventh Semester B.Tech. (Computer Science and Engineering/CE/IT/CT) (CBCS) Examination
DEEP LEARNING
Program Elective–IV

Time : Three Hours]   [Maximum Marks : 70

INSTRUCTIONS TO CANDIDATES

(1)   All questions carry marks as indicated.

(2)   Solve Question **1 OR** Question No. **2**.

(3)   Solve Question **3 OR** Question No. **4**.

(4)   Solve Question **5 OR** Question No. **6**.

(5)   Solve Question **7 OR** Question No. **8**.

(6)   Solve Question **9 OR** Question No. **10**.

1.   (A)   Explain the difference between Mc-Culloch Pitts Neuron and Perceptron. Explain Thresholding Logic of Perceptron.   8

     (B)   Write and explain Perceptron Learning algorithm.   6

OR

2.   (A)   Explain Representation Power of Multilayer Perceptron.   6

     (B)   Draw and Explain Feed Forward Neural Networks.   8

3.   (A)   Explain Representation Power of Feed Forward Neural Network.   7

     (B)   Draw and explain Momentum Based Gradient Descent.   7

OR

4.   (A)   What are optimization algorithms ?   6

     (B)   Explain Adagrad and RMS Prop Algorithms of Optimization.   8

5.   (A)   What is an Activation Function ? Explain Sigmoid and Tanh Activation function and give equations for both.   8

     (B)   Explain Xavier and He methods of Initialization.   6

OR

Model Questions

6. (A) Explain LI and L2 regularization Techniques. What is difference in techniques ?   7

    (B) Explain the concept and Bias and Variance. Also explain Over fitting in Deep Learning.   7

7. (A) Explain various Components of Convolutional Neural Network.   10

    (B) Write Short note on LeNet and Alexnet.   4

OR

8. (A) Explain Convolution operation with the help of an example.   6

    (B) Draw and explain Guided Backpropagation algorithm.   8

9. (A) Draw and explain Recurrent Neural Network.   10

    (B) Explain Vanishing Gradient Problem with example.   4

OR

10. Write short notes on :   14

    (1) Back Propagation through time

    (2) Exploding Gradient Problem

    (3) GRU.

Model Questions

B.Tech. (Computer Science & Engineering / Computer Technology / Computer Engineering / Information Technology) Seventh Semester (C.B.C.S.)

Program Elective-IV : Deep Learning

P. Pages : 2

Time : Three Hours

PSM/KW/23/2877/2888/2910/2899

Max. Marks : 70

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Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Due credit will be given to neatness and adequate dimensions.
8. Assume suitable data whenever necessary.

1.	a)	What is deep learning, Explain its uses and application and history.	7
	b)	What is activation Functions? Why activation functions are required?	7

OR

2.	a)	How a single perceptron can be used to represent the Boolean functions such as AND, OR.	7
	b)	Explain Back propagation with its algorithm.	7
3.	a)	What is Gradient Descent (GD) and its types with help of diagram.	7
	b)	What is an Epoch? Explain in detail how the Epoch size may vary.	4
	c)	What is Loss/Cost Functions? How it is improved.	3

OR

4.	a)	Differentiate between Gradient Descent and Stochastic Gradient Descent.	7
	b)	Explain briefly about the Gradient Descent Algorithm.	4
	c)	Explain Momentum Based Gradient Descent.	3
5.		Explain the following w.r.t. Back Propagation algorithm. Convergence and Local Minima, Representational Power of Feedforward Networks, Hypothesis Space Search and Inductive Bias, Hidden Layer Representations, Generalization, Overfitting, and Stopping Criterion.	14

OR

6.	a)	What is Regularization? How does Regularization helps in Overfitting?	5
	b)	What are GD optimization methods and which optimizer to use?	6

1 / 2

3

Model Questions

	c)	What is the problem of vanishing Gradient? Describe various solutions to this problem.	3
7.	a)	Illustrate Convolution operation in CNN with an example.	7
	b)	Explain the architecture of VGG.	7

OR

8.	a)	Explain the architecture of AlexNet.	4
	b)	What are pooling layers in CNN? Illustrate Max pooling with an example.	5
	c)	Differentiate Convolutional neural networks and Generative adversarial networks.	5
9.	a)	What is Recurrent Neural Network (RNN)? State and explain types of RNN in brief.	7
	b)	Describe the general layout of a Long Short-Term Memory Network (LSTM) with suitable diagram.	7

OR

10.	a)	Define the following.	7

    i) Non convex optimization

    ii) RNN language models

    iii) Recurrent networks.

	b)	Explain LSTM in detail.	7

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