

Department of CSE(DS)

B. Tech. Mid Question Bank (R20 Regulation)

Academic Year: 2024-25

Semester: VII

Subject Name: Deep Learning

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PART-A

Q.No	Questions	Marks	BL	CO	Unit No
1	What is Deep Feed Forward networks?	2M	BL1	CO1	I
2	List reasonably common hidden unit types.	2M	BL1	CO1	I
3	List out different set of layers in Feed forward networks.	2M	BL1	CO1	I
4	Describe Gradient Descent.	2M	BL2	CO1	I
5	Give reason for the term "feed forward" used in the feed forward networks.	2M	BL2	CO1	I
6	State Universal Approximation Theorem.	2M	BL2	CO1	I
7	Describe Regularization for deep learning.	2M	BL2	CO2	II
8	List the common types of parameter norm penalties.	2M	BL1	CO2	II
9	Define dataset augmentation. Why dataset augmentation is important?	2M	BL2	CO2	II
10	Illustrate Semi supervised learning.	2M	BL3	CO2	II
11	Why are parameter tying and sharing used?	2M		CO2	II
12	Define Dropout. How does dropout prevent overfitting?	2M	BL2	CO2	II
13	How do objectives differ in Learning vs. Optimization?	2M	BL2	CO3	III
14	List the Parameter initialization strategies.	2M	BL2	CO3	III
15	Mention the different challenges in optimization.	2M	BL3	CO3	III
16	Discuss about Adam optimizer.	2M	BL2	CO3	III
17	Write short notes on Quasi-Newton methods.	2M	BL2	CO3	III
18	Define Meta-Algorithms? List some common Meta-Algorithms.	2M	BL2	CO3	III
19	What is meant by convolution?	2M	BL1	CO4	IV
20	How pooling handles inputs of varying size.	2M	BL4	CO4	IV
21	List three stages of a convolutional network.	2M	BL1	CO4	IV
22	Explain feature map.	2M	BL2	CO4	IV
23	Define unshared convolution.	2M	BL1	CO4	IV
24	Write short notes on parameter sharing.	2M	BL2	CO4	IV
25	Define Model compression.	2M	BL1	CO5	V
26	Write short notes on Dataset augmentation.	2M	BL2	CO5	V
27	What is Natural Language Processing?	2M	BL2	CO5	V
28	List the main components of a Speech recognition system.	2M	BL2	CO5	V

29	Define Computer vision? List the applications of computer vision.	2M	BL1	CO5	V
30	Define Hierarchy of words.	2M	BL1	CO5	V

PART-B

Q.No	Questions	Marks	BL	CO	Unit No
1	Describe Deep feed forward networks.	3M	BL1	CO1	I
2	Discuss about Hidden Units.	3M	BL2	CO1	I
3	Explain Cost function in Gradient based learning.	3M	BL3	CO1	I
4	Describe Back Propagation algorithm.	3M	BL1	CO1	I
5	Write short notes on Architecture Design.	3M	BL4	CO1	I
6	List and explain the historical trends in Deep Learning.	3M	BL1	CO1	I
7	Give an example of learning XOR function to explain a fully functioning feed forward network.	6M	BL2	CO1	I
8	Explain in detail about the concept of Gradient based learning.	6M	BL2	CO1	I
9	Develop a Deep Feed forward network and explain.	6M	BL6	CO1	I
10	Explain Regularization for deep learning?	3M	BL2	CO2	II
11	Define Norm Penalties. How do you formulate an optimization problem with a norm penalty as a constrained optimization problem?	3M	BL2	CO2	II
12	Explain Multi-Task Learning.	3M	BL2	CO2	II
13	Illustrate Meta-algorithm used for early stopping.	3M	BL3	CO2	II
14	Explain Adversarial Training.	3M	BL2	CO2	II
15	Discuss the steps involved in computing Tangent distance.	3M	BL3	CO2	II
16	What are techniques used for regularization? Explain.	6M	BL3	CO2	II
17	Analyse and write short notes on Dataset Augmentation.	6M	BL4	CO2	II
18	Explain popular ensemble methods besides Bagging.	6M	BL3	CO2	II
19	Explain the role of Optimization in Deep Learning.	3M	BL3	CO3	III
20	What is the difference between Learning and Pure Optimization? Explain.	3M	BL3	CO3	III
21	Discuss the challenges in Neural Network Optimization.	3M	BL2	CO3	III
22	Explain the basic Optimization algorithms.	3M	BL3	CO3	III
23	List various algorithms with adaptive learning rates. Explain.	3M	BL2	CO3	III
24	Discuss about supervised Pre-training.	3M	BL2	CO3	III
25	Give an example for convolution.	3M	BL2	CO4	IV
26	Describe Pooling with suitable example.	3M	BL2	CO4	IV
27	Explain the key similarities between CNNs and the visual cortex.	3M	BL2	CO4	IV
28	Discuss in detail the variants of the Basic Convolution Function.	3M	BL2	CO4	IV

29	Explain about parameter sharing.	3M	BL2	CO4	IV
30	Illustrate Equivariant representation.	3M	BL3	CO4	IV
31	Differentiate locally connected layers, tiled convolution and standard convolution with suitable examples and diagram.	6M	BL4	CO4	IV
32	Explain the following with suitable diagram. i. Sparse interactions. ii. Parameter sharing.	6M	BL4	CO4	IV
33	Evaluate variants of the basic convolution function?	6M	BL5	CO4	IV
34	Discuss about Large scale distributed implementations.	3M	BL2	CO5	V
35	Explain about Contrast normalization in computer vision.	3M	BL3	CO5	V
36	Illustrate N-Gram models.	3M	BL3	CO5	V
37	What are the common types of Speech recognition systems? Explain.	3M	BL3	CO5	V
38	Describe Noise-Contrastive Estimation.	3M	BL2	CO5	V
39	How to speeding-up Gradient descent using sampling? Explain.	3M	BL4	CO5	V
40	Explain the strategies used for efficient large-scale model training.	6M	BL2	CO5	V
41	How do you calculate probabilities in N-gram models?	6M	BL4	CO5	V
42	Discuss various methods used for high-dimensional outputs.	6M	BL2	CO5	V

Note

- Mid Question paper contains Part-A and Part-B. Each question in Part-A carries 2 marks. Prepare a list of 6 short answer questions from each unit as per the format shown above for PART-A.
- For PART-B, prepare a list of 6 questions carrying 3 marks each from 3rd Unit. Prepare a list of 6 questions carrying 3 marks each and 3 questions carrying 6 marks each from 1st, 2nd, 4th and 5th Units as per the format shown above for PART-B.