



BRAINWARE UNIVERSITY

Bahware University Barasat, Kelkate -700125

Term End Examination 2023 Programme – B.Sc.(IT)-AI-2020 Course Name - Deep Learning Course Code - BAIC601 (Semester VI)

Full Marks: 6	Ful	M	ar	·ks	:	6
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Time: 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

- Choose the correct alternative from the following:
- (i) Predict that Neuro Fuzzy systems can lead to more powerful neural network
 - a) yes

b) no

c) may be

- d) cannot be determined
- (ii) The input image has been converted into a matrix of size 28 X 28 and a kernel / filter of size 7 X 7. Calculate the size of the convoluted matrix.
 - a) 20x20

b) 21x21

c) 22x22

- d) 25x25
- (iii) In a simple MLP model with 8 neurons in the input layer, 5 neurons in the hidden layer and 1 neuron in the output layer. Calculate the size of the weight matrices between hidden output layer and input hidden layer.
 - a) [1 X 5], [5 X 8]

b) [5 x 1], [8 X 5]

c) [8 X 5], [5 X 1]

- d) [8 X 5], [1 X 5]
- (iv) State the cause of the necesity of biological neural networks.
 - a) to solve tasks like machine vision & natural language processing
- b) to apply heuristic search methods to find solutions of problem
- c) to make smart human interactive & user friendly system
- all of the mentioned
- (v) Determine the auto-association task in neural networks?
 - a) find relation between 2 consecutive inputs
- b) related to storage & recall task

c) predicting the future inputs

- d) none of the mentioned
- (vi) Define the unsupervised learning.
 - a) features of group explicitly stated
- b) number of groups may be known
- c) neither feature & nor number of groups is
- d) none of the mentioned
- (vii) Select the example of a unsupervised feature map
 - a) text recognition

b) voice recognition

LIBRARY Bahware University d) none of the mentioned Barasat, Kelkata -700125ge recognition (viii) Choose the function of neurotransmitter. b) they modify conductance of post synaptic a) they transmit data directly at synapse to membrane for certain ions other neuron d) both polarisation & modify conductance of c) cause polarisation or depolarisation membrane (ix) State a Boltzman machine. b) A feedback network with hidden units and A feedback network with hidden units probabilistic update d) A feed forward network with hidden units A reed forward network with hidden units and probabilistic update (x) Define the objective of linear auto associative feedforward networks? b) to associate a given pattern with others a) to associate a given pattern with itself d) none of the mentioned c) to associate output with input (xi) Select the property should a feedback network have, to make it useful for storing information. b) interpolative behaviour a) accretive behaviour d) none of the mentioned c) both accretive and interpolative behaviour (xii) How is pattern storage task generally accomplished? b) by a feedback network consisting of a) by a feedback network consisting of processing units with linear output processing units with non linear output functions functions d) by a feedforward network consisting of c) by a feedforward network consisting of processing units with linear output processing units with non linear output functions functions (xiii) Predict that the trajectory of the state is determined by a) activation dynamics b) synaptic dynamics c) both activation and synaptic dynamics d) none of the mentioned (xiv) What may create basins of attraction in energy landscape? a) feedback among units b) nonlinear processing in units c) both feedback and nonlinear processing in d) none of the mentioned (xv) How are input layer units connected to second layer in competitive learning networks? a) feedforward manner b) feedback manner c) feedforward and feedback d) feedforward or feedback **Group-B** (Short Answer Type Questions) $3 \times 5 = 15$ 2. State the limitations of using a perceptron. (3)3. Describe fine-tuning and how is it different from transfer learning? (3)4. What do you understand by end-to-end learning? (3) 5. How can you generate a dataset on multiple cores in real-time that can be fed to the deep (3)learning model? 6. The deep learning model is not good for small data sets, and it fails here. Explain Data (3)Normalization. Explain the reason it important to introduce non-linearities in a neural network? (3)

Group-C (Long Answer Type Questions)

7. Differentiate between SVMs and Neural Networks.

5 x 6=30

8. Define the deep learning frameworks or tools.	, (5
9. What do you understand by Deep Autoencoders?	(5
10. What are the three steps to developing the necessary assumption structure in Deep learning?	(5
11. Discuss a dataset?	77:373(5)
12. Define a Random Forest.	\$100 (5)
OR	2-1
What is Bias and Variance in a Machine Learning Model?	(5)

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