17760

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – M.Tech.(CSE)-AIML-2024
Course Name – Deep Learning
Course Code - MTA30116
(Semester III)

Full Marks : 60 **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

1. *Choose the correct alternative from the following :*

(i) Identify the part of biological neuron that receives signals from other neurons

a) Axon b) Dendrites
c) Soma d) Synapse

(ii) In artificial neural networks, the biological neuron is modeled as:

a) Input-output function with weights and activation b) Random process generator
c) Memory storage unit d) None of these

(iii) Select the logic function that cannot be implemented by a single McCulloch–Pitts neuron

a) AND b) OR
c) NOT d) XOR

(iv) The problem of finding hidden structure in unlabeled data is called_______________

a) unsupervised learning b) reinforcement learning
c) supervised learning d) None

(v) Identify the type of learning labelled training data is used____________________

a) supervised learning b) unsupervised learning
c) reinforcement learning d) active learning

(vi) The cost parameter in the SVM means__________________

a) the kernel to be used b) the tradeoff between misclassification and simplicity of the model
c) the number of cross-validations to be made d) None

(vii) Support Vector deep is________________

a) geometric model b) probabilistic model
c) logical model d) none

(viii) A model of language consists of the categories which does not include?

a) Language units b) Role structure of units

c) System constraints
d) Structural units

(ix) In language understanding, the levels of knowledge that does not include?

a) Syntactic
b) Phonological
c) Logical
d) Empirical

(x) Among the following which is not a horn clause?

a) p
b) Øp V q
c) p → q
d) p → Øq

(xi) Justify rule for selective top-down parser model

a) Begins by hypothesizing a sentence (the symbol S) and successively predicting lower level constituents until individual preterminal symbols are written
b) Begins by hypothesizing a sentence (the symbol S) and successively predicting upper level constituents until individual preterminal symbols are written
c) Begins by hypothesizing lower level constituents and successively predicting a sentence (the symbol S)
d) Begins by hypothesizing upper level constituents and successively predicting a sentence (the symbol S)

(xii) The action 'STACK(A, B)' of a robot arm specify to

a) Place block B on Block A
b) Place blocks A, B on the table in that order
c) Place blocks B, A on the table in that order
d) Place block A on block B

(xiii) Analyze learning in deep learning?

a) Learning, in the context of deep learning, describes an automatic search process for better representations
b) A process that is "learned" from exposure to known examples of inputs and outputs
c) Learning in school attending 5th grade
d) Answers A & B

(xiv) Identify the purpose of feature scaling in deep learning?

a) To convert categorical features into numerical features
b) To reduce the dimensionality of the feature space
c) To standardize the range of numerical features
d) To introduce new features into the model

(xv) Evaluate the following is a reasonable way to select the number of principal components "k"?

a) choose k to be the smallest value so that at least 99% of the varinace is retained. - answer
b) choose k to be 99% of m (k = 0.99*m, rounded to the nearest integer).
c) choose k to be the largest value so that 99% of the variance is retained.
d) use the elbow method

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Do you think that deep network is better than a shallow one? (3)
3. Justify the feedback process of the Back propagation network model. (3)
4. Describe the theory of autonomous form of deep learning in a few words. (3)
5. Identify the layers in the neural network? (3)
6. Analyze the main differences between AI, Machine Learning, and Deep Learning? (3)

OR

Differentiate supervised and unsupervised deep learning procedures. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain the working of Deep Belief Networks with a labeled diagram. (5)
8. Identify the learning rate affect the training of the Neural Network? (5)
9. Justify learning rate of neural network models affects the knowledge model if the learning rate is too high or low? (5)

10. Difference between multi-class and multi-label classification problems. (5)
11. Analyze the fostered the implementation and experimentation of powerful neural network architectures in the industry? (5)
12. Justify the basic architecture of Human Neural Networks? (5)

OR

Justify the basic different types of deep neural networks? (5)

****