BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – M.Tech.(CSE)-AIML-2022/M.Tech.(CSE)-AIML-2023
Course Name – Deep Learning
Course Code - PCC-MCSM302
(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) Justify the major issue in Leave-One-Out-Cross-Validation(LOOCV)?

a) low variance
b) high variance
c) faster runtime compared to k-fold cross validation
d) slower runtime compared to normal validation

(ii) The output of training process in deep learning is_____

a) deep learning algorithm
b) deep learning model
c) null
d) accuracy

(iii) Identify the bias-variance decomposition of a ridge regression estimator compare with that of ordinary least squares regression?

a) ridge has larger bias, larger variance
b) ridge has smaller bias, larger variance
c) ridge has larger bias, smaller variance
d) ridge has smaller bias, smaller variance

(iv) Of the Following Examples, select the address using an supervised learning Algorithm?

a) given a set of news articles found on the web, group them into set of articles about the same story
b) given email labeled as spam or not spam, learn a spam filter
c) given a database of customer data, automatically discover market segments and group customers into different market segments
d) find the patterns in market basket analysis

(v) Impact of high variance on the training set ?

a) underfitting
b) overfitting
c) both underfitting & overfitting
d) depends upon the dataset

(vi) Analyze the following is an example of feature extraction?

a) applying pca to project high dimensional data
b) construction bag of words from an email
c) removing stop words
d) forward selection

(vii) Imagine a Newly-Born starts to learn walking. It will try to find a suitable policy to learn walking after repeated falling and getting up. Specify what type of deep learning is best suited?

a) regression
b) means algorithm
c) reinforcement learning
d) None

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

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

(ix) If TP=9 FP=6 FN=26 TN=70 then Error rate will be

a) 45
b) 99
c) 28
d) 20

(x) Evaluate the following is a common activation function used in deep learning?

a) Sigmoid
b) Linear
c) Exponential
d) Quadratic

(xi) Application of deep learning methods to large databases is called

a) data mining.
b) artificial intelligence
c) big data computing
d) internet of things

(xii) During the treatement of cancer patients , the doctor needs to be very careful about which patients need to be given chemotherapy.Which metric should we use in order to decide the patients who should given chemotherapy?

a) precision
b) recall
c) call
d) score

(xiii) Suppose your model is demonstrating high variance across the different training sets. Which of the following is NOT valid way to try and reduce the variance?

a) increase the amount of traning data in each traning set
b) improve the optimization algorithm being used for error minimization.
c) decrease the model complexity
d) reduce the noise in the training data

(xiv) You are given sesimic data and you want to predict next earthquake , this is an example of

a) supervised learning
b) reinforcement learning
c) unsupervised learning
d) dimensionality reduction

(xv) Describe the role of CNNs in fully connected layers?

a) Extract local features
b) Combine high-level features and perform classification
c) Normalize the data
d) Reduce the input size

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the function of the Fourier Transform in Deep Learning? (3)
3. Identify the prerequisites for starting in Deep Learning? (3)
4. Justify the use of the Activation function? (3)
5. Explain the main benefits of Mini-batch Gradient Descent? (3)
6. Justify the feedback process of the Back propagation network model. (3)

OR

Justify the three basic steps to developing the necessary assumption structure in Deep learning? (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Analyze the Multi-layer Perceptron(MLP) with and without feedback network ? (5)

8. Distinguish the Different Layers on CNN? (5)
9. Distinguish the difference between Forward propagation and Backward Propagation in Neural Networks? (5)
10. Justify the activation ReLU the most commonly used Activation Function? (5)
11. Justify retrieve deep knowledge from shallow information in learning process ?? (5)
12. Justify the basic architecture of Human Neural Networks? (5)

OR

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

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