QPC: RN18001260 AR - 18 Reg. No.

GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, November – 2021

(Seventh Semester)

BEIPE7040 / BECPE7041 – Artificial Intelligence and Machine Learning

(AEI /ECE)

Time: 3 hrs Maximum: 100 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) (2 x 10 = 20 Marks)

Q.1. Answer ***ALL*** questions [CO#] [PO#]

a. What is supervised learning? 1 1

(i) All data is unlabelled and the algorithms learn to inherent structure from the input data

(ii) All data is labelled and the algorithms learn to predict the output from the input data

(iii) It is a framework for learning where an agent interacts with an environment and receives a reward for each interaction

(iv) Some data is labelled but most of it is unlabelled and a mixture of supervised and unsupervised techniques can be used

b. What is Unsupervised learning? 1 1

(i) All data is unlabelled and the algorithms learn to inherent structure from the input data

(ii) All data is labelled and the algorithms learn to predict the output from the input data

(iii) It is a framework for learning where an agent interacts with an environment and receives a reward for each interaction

(iv) Some data is labelled but most of it is unlabelled and a mixture of supervised and unsupervised techniques can be used

c. How do you handle missing or corrupted data in a dataset? 2 1

(i) Drop missing rows or columns

(ii) Replace missing values with mean /median/mode

(iii) Assign a unique category to missing values

(iv) All of the above

d. A multiple regression model has 2 2

(i) only one independent variable

(ii) more than one dependent variable

(iii) more than one independent variable

(iv) none of the above

e. To find the minimum or the maximum of a function, we set the gradient to zero because: 3 2

(i) The value of the gradient at extrema of a function is always zero

(ii) Depends on the type of problem

(iii) Both A and B

(iv) None of the above

f. The most widely used metrics and tools to assess a classification model are 3 1

(i) Confusion matrix

(ii) Cost-sensitive accuracy

(iii) Area under the ROC curve

(iv) All of the above

g. Which of the following is a disadvantage of decision trees? 3 2

(i) Factor analysis

(ii) Decision trees are robust to outliers

(iii) Decision trees are prone to be overfit

(iv) None of the above

h. RNNs stands for? 4 1

(i) Receives neural networks

(ii) Report neural networks

(iii) Recording neural networks

(iv) Recurrent neural networks

i. CNN is mostly used when there is an? 4 2

(i) structured data

(ii) unstructured data

(iii) Both (i) and (ii)

(iv) None of the above

j. What is Artificial intelligence? 1 1

(i) Putting your intelligence into Computer (ii) Programming with your own intelligence

(iii) Making a Machine intelligent (iv) Putting more memory into Computer

PART – B: (Short Answer Questions) (2 x 10 = 20 Marks)

Q.2. Answer ***ALL*** questions	[CO#]	[PO#]
a. Define irreducible error.	2	3
b. What do you mean by rationality of an agent?	2	3
c. List out some of the benefits of machine learning	1	2
d. What are the different processes in data preparation?	2	1
e. Differentiate between insufficient data and non-representative data?	2	2
f. Define sampling bias and write its effects?	2	2
g. How do classification and regression differ?	3	1
h. What do you understand by the Confusion Matrix?	3	2
i. How is a decision tree pruned?	3	3
j. What is the significance of training set and test set?	3	2

PART – C: (Long Answer Questions) (15 x 4 = 60 Marks)

Answer ***ALL*** questions	Marks	[CO#]	[PO#]
3. a. Describe briefly the different steps of machine learning.	10	1	2
b. Explain briefly the need of machine learning.	5	2	1
(OR)			
c. List out the different challenges associated with machine learning.	5	2	1
d. Discuss briefly the different types of machine learning with suitable examples.	10	1	2
4. a. What is the need of data preprocessing and discuss about different preprocessing techniques.	10	2	2
b. What are the different types of data in machine learning? Discuss it in aspect of data transformation.	5	2	1
(OR)			
c. Discuss about bias-variance tradeoff.	5	3	1
d. Discuss about data pre-processing techniques used in machine learning briefly.	10	2	1
5. a. Executing a binary classification tree algorithm is a simple task. But, how does a tree splitting take place? How does the tree determine which variable to break at the root node and which at its child nodes?	10	3	2
b. Explain the difference between KNN and K-means Clustering.	5	3	1
(OR)			
c. What is a Decision Tree? Explain it with an example.	10	3	1
d. What do you understand by Reinforcement Learning technique?	5	3	1
6. a. Explain the LeNet architecture.	10	4	2
b. What are the main differences between AI, Machine Learning, and Deep Learning?	5	4	1
(OR)			
c. What Are the Different Layers on CNN?	10	4	1
d. What is Pooling on CNN, and How Does It Work?	5	4	2

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