Reg. No.														

B.Tech. DEGREE EXAMINATION, MAY 2022
Sixth Semester

18ECE307J – APPLIED MACHINE LEARNING
(For the candidates admitted from the academic year 2018-2019 to 2019-2020)

Note:
(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours | Max. Marks: 75

PART – A (25 × 1 = 25 Marks)
Answer **ALL** Questions

		Marks	BL	CO	PO
1.	_____ does not include different learning methods. (A) Analogy (B) Introduction (C) Memorization (D) Deduction	1	1	2	3
2.	Machine learning is _____ (i) Artificial intelligence (ii) Deep learning (iii) Data statistics (A) Only (i) (B) (i) and (ii) (C) Only (ii) (D) Only (iii)	1	1	3	3
3.	_____ is not numerical functions in the various function representation of machine learning. (A) Neural network (B) Support vector machines (C) Case based (D) Linear regression	1	1	3	3
4.	Identify the effective machine learning algorithm based on the idea of bagging. (A) Decision tree (B) Random forest (C) Regression (D) Classification	1	1	3	3
5.	Identify the false statement of regression. (A) It may be used for interpretation (B) It is used for prediction (C) It discovers casual relationships (D) It relates inputs to outputs	1	1	3	3
6.	Multi-layer feed forward neural network is used to _____. (A) Realize structure of multiple layer perceptron (B) Pattern classification (C) Pattern mapping problem (D) Realize an approximation to multilayer perceptron	1	1	4	3
7.	Gradient descent (A) Gradient descent will always find the global optimum (B) Steps are taken proportional to the gradient of the function at the current point (C) The starting point could affect if a global optimum is found (D) The descent continuous until the gradient is very large	1	1	5	3

		Marks	BL	CO	PO
24.	_____ model gives the probability of each word following each other word. (A) Bigram model (B) Diagram model (C) Gram model (D) Speech model	1	1	1	3
25.	Pattern recall takes more time for (A) MLFNN (Multi Layered Feed Forward Neural Network) (B) Basis function (C) Equal for both MLFNN and basis function (D) Cell format	1	1	4	3

PART – B (5 × 10 = 50 Marks)
Answer **ALL** Questions

		Marks	BL	CO	PO
26. a.	Explain the concept of supervised learning.	10	2	3	3
	(OR)				
b.	Explain Bias and Variance and its trade off.	10	2	3	2
27. a.	Explain gradient descent perception learning.	10	2	5	3
	(OR)				
b.	Explain the types of tree pruning.	10	2	5	3
28. a.	Discuss the concept of Hierarchical clustering with example.	10	2	5	2
	(OR)				
b.	Write the steps to perform agglomerative clustering.	10	2	6	2
29. a.	Explain reinforcement learning with suitable example.	10	2	2	3
	(OR)				
b.	Discuss the concept of Bayes theorem.	10	2	6	3
30. a.	Describe the Human Emotion problem in machine learning.	10	2	4	2
	(OR)				
b.	Explain the concept of facial expression recognition system.	10	2	4	2

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8. The advantage of basis function (BF) over multilayer feedforward (MLFFNN) neural network is — 1 1 4 3
   (A) BF is faster than MLFFNN (B) BF is slower than MLFFNN
   (C) Storing in BF is faster than MLFFNN (D) BF is more complex than MLFFNN

9. A _____ is a decision support tool that uses a tree like graph or model of decisions and their possible consequences, including chance event overcomes, resources cost and utility. — 1 1 5 3
   (A) Decision tree (B) Graph tree
   (C) Pruning branch (D) Random tree

10. XOR problem exceptionally interesting to neural network researchers because _____. — 1 1 4 2
   (A) It can be expressed in a way that allows you to use a neural network (B) It is complex binary operation that cannot be solved using neural networks
   (C) It can be solved by a single layer perception (D) It is the simplest linearly inseparable problem that exists

11. _____ is a clustering procedure where all objects start out in one giant cluster. Clusters are formed by dividing this clustered into smaller and smaller cluster. — 1 1 5 3
   (A) Non hierarchical clustering (B) Divisive clustering
   (C) Agglomerative clustering (D) k-means clustering

12. _____ is true about complete linkage hierarchical clustering. — 1 1 5 3
   (A) We merge in each step the two clusters, whose two closest members have the smallest distance (B) We merge in the members of the clusters in each step, which provide the smallest maximux pairwise distance
   (C) The distance between two clusters is defined as the average distance between each point in one cluster to every point (D) We merge in the members of the clusters in each step which provide the largest maximum pairwise distance

13. Agglomerative clustering is _____. — 1 1 5 3
   (A) The initial state is a single cluster with all samples and process proceeds by splitting the intermediate cluster until all elements separated (B) The process starts form top
   (C) Process starts form the bottom and proceeds by merging the clusters until a stop criterion is reached (D) Requires prior knowledge of number of clusters you want to divide your data

14. The self organizing list improves _____. — 1 1 6 3
   (A) Average access time (B) Insertion
   (C) Deletion (D) Binary search

15. The worst case running time of a linear search on the self organization list is _____. — 1 1 6 3
   (A) O(1) (B) O(logn)
   (C) O(n) (D) $O(n^2)$

16. Naïve Bayes algorithm is a _____ learning algorithm. — 1 1 6 3
   (A) Supervised (B) Reinforcement
   (C) Unsupervised (D) Semi unsupervised

17. Probability provides a way of summarizing the _____ that comes from our laziness and ignorances. — 1 1 6 3
   (A) Belief (B) Uncertainity
   (C) Joint probability distributions (D) Randomness

18. The data is then fed into the model and output from each layer is obtained this step is called _____. — 1 1 4 3
   (A) Input layer (B) Output layer
   (C) Feed forward layer (D) Feed backward layer

19. The input from input layer is then feed into the _____. — 1 1 4 3
   (A) Input layer (B) Output layer
   (C) Hidden layer (D) Pooling layer

20. _____ is all about making decision sequentially. — 1 1 2 3
   (A) Supervised learning (B) Unsupervised learning
   (C) Reinforcement learning (D) Semisupervised learning

21. Genetic algorithm consists of the following: — 1 1 1 3
   (i) Evolution
   (ii) Selection
   (iii) Reproduction
   (iv) Mutation
   (A) (ii), (iii) and (iv) only (B) (i) and (ii) only
   (C) (iii) and (iv) only (D) (iv) only

22. The primary function of methylase is to — 1 1 1 3
   (A) Add the methyl groups to the DNA (B) Use in producing the methane gas
   (C) Remove the methyl groups form the DNA (D) Both remove and add methyl groups from the DNA

23. Increase in reaction component's concentration leads to _____. — 1 1 1 3
   (A) Litigation in both intermolecular and intramolecular reactions (B) Litigation only in intermolecular without affecting intramolecular
   (C) High chance of litigation in intermolecular and less or no chance in intramolecular (D) Low chance of litigation in both types of reaction