

18AUE455T - MACHINE LEARNING APPROACH FOR AUTOMOTIVE APPLICATIONS

(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

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 40 minutes.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 100

Part - A (20 × 1 Marks = 20 Marks)

Answer All Questions

	Marks	BL	CO
1. Identify the kind of learning algorithm for facial identity for facial expression (A) Recognition pattern (B) Recognition anomalies (C) Prediction (D) Generating pattern	1	2	1
2. Choose the disadvantage of decision tree algorithm among the following (A) Decision trees are robust to outlier (B) Factor analysis (C) Decision trees are prone to over-fit (D) Decision trees are prone to under-fit	1	1	1
3. What is the application of machine learning methods for large database? (A) Data mining (B) Internet of things (C) Big data computing (D) Artificial intelligence	1	1	1
4. Which of the following machine learning algorithm is based upon the idea of bagging? (A) Decision tree (B) Random forest (C) Classification (D) Regression	1	2	1
5. What is the term known as on which the machine learning algorithms build a model based on sample data? (A) Training data (B) Data features (C) Data transfer (D) Testing Data	1	1	2
6. Which of the following machine learning techniques helps in detecting the outliers in data? (A) Classification (B) Clustering (C) Regression (D) Anomaly detection	1	1	2
7. The father of machine learning is ____ (A) Geoffrey Everest Hinton (B) Geoffrey hill (C) Geoffrey chaucer (D) Lancer	1	2	2
8. Identify which is not the application of ML? (A) Autonomous vehicle (B) Speech recognition (C) Image processing (D) Feature extraction	1	2	2
9. Identify the incorrect numerical functions in the various function representation of ML? (A) Case based (B) Support vector machine (C) Linear regression (D) Neural network	1	2	3
10. Analysis of ML algorithm needs (A) Statistical learning theory (B) Computational learning theory (C) Experimental learning theory (D) Both statistical and experimental learning theory	1	2	3

11. Total types of layers in radial basis function neural network case? (A) 1 (B) 2 (C) 3 (D) 4	1	2	3
12. Which of the following is not a supervised learning? (A) Principal component analysis (B) Naive-Bayes (C) Linear regression (D) Decision tree	1	2	3
13. Which of the following is not a Machine learning disciplines? (A) Information theory (B) Optimization+Control (C) Physics (D) Neurostatistics	1	2	4
14. Which of the following is not a Machine learning algorithm? (A) SVM (B) PSVM (C) SVG (D) Random Forest	1	2	4
15. Which will not fall under machine learning? (A) Artificial intelligence (B) Rule based inference (C) Classification (D) Regression	1	2	4
16. Machine learning algorithm is a subset of _____ (A) Deep learning (B) AI (C) Data science (D) Neural Network	1	2	4
17. Identify the type of learning in which labelled training data is used? (A) Semi supervised (B) Unsupervised (C) Supervised (D) Reinforced	1	2	5
18. What is the advantage of decision tree? (A) Factor analysis (B) Robust to outliers (C) Prone to over-fit (D) Computational complexity	1	2	5
19. Neural networks are complex _____ functions with many parameters. (A) Linear (B) Non-linear (C) Discrete (D) Exponential	1	1	5
20. Decision models are represented by which of the following? (A) Triangle (B) Square (C) Circle (D) polygon	1	2	5

Part - B (5 × 4 Marks = 20 Marks)

Answer any 5 Questions

21. Define Artificial Intelligence.	4	1	1
22. State on what basis algorithms are chosen?	4	2	1
23. Differentiate Human Intelligence and AI.	4	2	2
24. List some application of AI.	4	2	2
25. Differentiate supervised and unsupervised learning.	4	2	3
26. Explain the difference between AI and ML.	4	2	4
27. Brief the architecture of neural networks.	4	2	5

Part - C (5 × 12 Marks = 60 Marks)

Answer All Questions

28. a. With suitable example, explain different machine learning approaches. (OR) b. Explain basic maintenance strategies and discuss about the factors influencing maintenance strategies.	12	2	1
29. a. List the types of sensors used in condition monitoring applications with suitable example. (OR) b. Explain the different types of sensors- sound, AE and infrared	12	2	2
30. a. Differentiate time and frequency domain analysis and explain the need of both. (OR) b. Explain about the vibration signatures for fault detection in rotating machines.	12	3	3
31. a. Clearly explain the usage of feature extraction, selection and reduction. (OR) b. Explain support vector machine and proximal support vector machine with an example.	12	2	4
32. a. Explain the process of condition monitoring of gearbox. (OR) b. Explain the process of condition monitoring of machine tools.	12	1	5

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