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Total No. of Questions: [09]

Total No. of Printed Pages: 1

B. Tech (EE) (Semester – 8th)
MACHINE LEARNING
Subject Code: BCSEO1011
Paper ID: [18OE111517]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. Define machine learning.
- b. Differentiate between supervised and unsupervised learning.
- c. Which method can be used to reduce overfitting demonstrated by any model?
- d. What methods can be used for dimensionality reduction?
- e. Define Standard deviation.
- f. Define reinforcement learning.
- g. What is clustering?
- h. What are basic types of machine learning?
- i. What are the application areas of machine learning?
- j. Are there any disadvantages of machine learning? State.

Section – B

(5 marks each)

- Q2. What is the Curse of Dimensionality and how can unsupervised learning help with it?
- Q3. Explain the metrics used to evaluate the performance of the machine learning model.
- Q4. Explain the concept of training and testing a model in machine learning. What is the criteria adopted for do so?
- Q5. Differentiate between K means clustering and hierarchical clustering in detail.
- Q6. What is meant by hinge loss in SVM?

Section – C

(10 marks each)

- Q7. Explain in detail the basic principle of Support Vector machine. What are hard margin and soft margin SVMs? Mention different types of kernels in SVMs.
- Q8. a) How do you distinguish between model parameters and hyper parameters?
b) A company is interested in building a fraud detection model. Currently, the data scientist does not have a sufficient amount of information due to the low number of fraud cases. Which method is MOST likely to detect the GREATEST number of valid fraud cases?
- Q9. Discuss the difference between statistics and machine learning. Elaborate on the basics and use of statistics for machine learning.