

Please check that this question paper contains \_\_\_\_\_ questions and \_\_\_\_\_ printed pages within first ten minutes.

[Total No. of Questions: 09]

[Total No. of Pages: .02.....]

Uni. Roll No. ....

Program: B.Tech. (Batch 2018 onward)

Semester: 6

Name of Subject: Machine Learning.

Subject Code: PCCS-114

Paper ID: 17190

Scientific calculator is Not Allowed

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21 SEP 2022

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

**Part – A**

**[Marks: 02 each]**

**Q1.**

- a) What is bootstrapping and cross validation in algorithm analysis?
- b) Differentiate between general boundary and specific boundary
- c) Briefly, define Preference Bias and Restriction Bias
- d) What do you mean by Dimensionality reduction?
- e) Define genetic programming
- f) How GA hypothesis space search is different from other ML methods?

**Part – B**

**[Marks: 04 each]**

- Q2. What do you mean by a well –posed learning problem?
- Q3. List basic methods in supervised learning and discuss distance based methods.
- Q4. Give the difference between Find-S and candidate elimination algorithm in terms of hypothesis space search.
- Q5. Explain the concept of Inductive Bias?
- Q6. List the Features of Bayesian learning methods.
- Q7. How maximum likelihood and least squared error are related?

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**Part – C**

**[Marks: 12 each]**

**Q8.** Explain the decision tree algorithm with an example. Also, discuss the use of decision tree for classification purpose.

OR

Describe the candidate elimination algorithm with an example.

**Q9.** What is Minimum description length principle in machine learning? Explain the Navie Bayes classifier with example.

OR

What is Artificial Neural network? How Neural network is represented in machine learning? Explain the Back propagation algorithm.

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