R18

Code No: 155BZ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, August - 2022
MACHINE LEARNING
(Information Technology)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1. Explain the basic design issues and approaches to Machine learning with examples.[15]

2. Write a short note on:
   a) Concept Learning as Search
   b) Inductive Bias in decision tree learning. [7+8]

3. Explain Gradient Descent and the Delta Rule with:
   a) Derivation of Gradient Descent Rule
   b) Approximation to Gradient Descent. [8+7]

4. Explain the procedure to estimate the difference in error between two learning methods. [15]

5. Explain Naïve Bayes Algorithm for learning and classifying text. [15]

6.a) Explain briefly k-nearest neighbor algorithm.
b) Compare and contrast Lazy and eager learning. [9+6]

7. Explain General to specific beam search algorithm as implementation of Learn-one-rule. [15]

8. Explain the PROLOG-EBG algorithm with example. [15]

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R18

Code No: 156BN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, February - 2023
MACHINE LEARNING
(Computer Science and Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	Define Machine learning.	[2]
b)	Write about inductive bias.	[3]
c)	Define hypothesis.	[2]
d)	Write about sampling theory.	[3]
e)	Define Eager learning.	[2]
f)	What is lazy Learning?	[3]
g)	Define term Genetic.	[2]
h)	Discuss Dynamic Programming.	[3]
i)	Define explanation-based learning.	[2]
j)	Write about control knowledge.	[3]

PART – B

(50 Marks)

2. Which disciplines have their influence on machine learning? Explain with examples. [10]

OR

3.a) Explain the two uses of features in machine learning.
b) Discuss about decision tree representation, in detail. [5+5]

4. Explain in detail about Kernel Perceptron. [10]

OR

5. Discuss in detail about representation of Neural Networks. [10]

6. Describe briefly about k-nearest neighbor algorithm. [10]

OR

7.a) Discuss about Bayesian belief networks.
b) Explain about Bayes theorem. [5+5]

8. Discuss Briefly about Genetic algorithms in detail. [10]

OR

9.a) Discuss about Q–learning, in detail.
b) Explain temporal difference learning in detail. [5+5]

10. Explain about PROLOG-EBG, in detail. [10]

OR

11.a) Discuss about augment search operators.

b) Explain about search control knowledge in detail. [5+5]

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Code No: 155BZ **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, February - 2022
MACHINE LEARNING
(Information Technology)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
- - -

1.a) What do you mean by a well –posed learning problem?
b) Explain the important features that are required to well-define a learning problem. [6+9]

2.a) Discuss about candidate elimination algorithm in detail with example.
b) Elaborate the issues in Decision Tree learning. [9+6]

3. Demonstrate multilayer feed forward mechanism in back propagation with suitable example and how the error is back propagated. [15]

4.a) How to estimate hypothesis accuracy in artificial neural networks?
b) Explain the methods for comparing the accuracy of two hypotheses. [7+8]

5.a) Explain in detail about Naïve Bayes algorithm for learning classification problems.
b) Discuss Maximum Likelihood and Least Square Error Hypothesis. [9+6]

6. Demonstrate k-nearest neighbor algorithm with suitable example. [15]

7.a) What are the salient features of a Genetic Algorithm?
b) Demonstrate sequential covering algorithm with suitable example. [7+8]

8.a) Demonstrate explanation-based learning of search control knowledge.
b) Explain how to alter the search objective by using prior knowledge. [7+8]

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Code No: 155BZ **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, January/February - 2023
MACHINE LEARNING
(Common to IT, CSE(IOT))

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a) What are the issues in machine learning? [2]
b) Explain about hypothesis space search in decision tree learning? [3]
c) Define back propagation algorithm? [2]
d) What are the advanced topics in neural networks? [3]
e) Define sample complexity of finite hypothesis space? [2]
f) Compare eager and lazy learners? [3]
g) What do you mean by first order logic rule? [2]
h) What do you mean by inverted deduction? [3]
i) What do you mean by explanation based learning? [2]
j) What do you mean by analytical learning? [3]

PART – B

(50 Marks)

2. Trace the Candidate Elimination Algorithm for the hypothesis space H given the sequence of training examples from below table. [10]

Sky	Airtemp	Humidity	Wind	Water	Forecast	EnjoySport
Sunny	Warm	Normal	Strong	Warm	Same	Yes
Sunny	Warm	High	Strong	Warm	Same	Yes
Rainy	Cold	High	Strong	Warm	Change	No
Sunny	Warm	High	Strong	Cool	Change	Yes

OR

3.a) Explain the various stages involved in designing a learning system.
b) List the issues in Decision Tree Learning. Interpret the algorithm with respect to Overfitting the data. [5+5]

4. What is Artificial Neural Network? Explain appropriate problem for Neural Network Learning with its characteristics. [10]

OR

5. Compare and contrast between various learning algorithms. [10]

6. Write Bayes theorem. What is the relationship between Bayes theorem and the problem of concept learning? [10]

OR

7. Explain the Expectation maximization Algorithm in detail, with an example. [10]

8. Determine and explain the various models of evolution and learning. [10]

OR

9. What is Reinforcement Learning and explain Reinforcement learning problem with neat diagram. [10]

10. Analyze how prior knowledge is used to augment search operators. [10]

OR

11. Explain in detail about the inductive-analytical approaches to learning. [10]

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