



## NARASIMHA REDDY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad

Accredited by NAAC with A Grade, Accredited by NBA

### UNITWISEQUESTIONBANK,SHORT AND LONGANSWERTYPEQUESTIONS

#### Short Questions

#### UNIT-I

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	What are the important objectives of machine learning?	L4	CO1	PO5
2	Explain find –S algorithm with given example. Give its application.	L4	CO1	PO4
3	Explain the inductive biased hypothesis space and unbiased learner	L3	CO1	PO5
4	What are the basic design issues and approaches to machine learning?	L4	CO1	PO5
5	How is Candidate Elimination algorithm different from Find-S Algorithm.	L4	CO1	PO5
6	How do you design a checkers learning problem	L4	CO1	PO4
7	Explain the various stages involved in designing a learning system	L4	CO1	PO5
8	What are the issues in Machine Learning	L5	CO1	PO5
9	Explain the concept of Inductive Bias	L3	CO1	PO4
10	What do you mean by Concept Learning?	L3	CO1	PO4

#### UNIT-II

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	What is Artificial Neural Network?	L4	CO2	PO2
2	What are the types of problems in which Artificial Neural Network can be applied.	L3	CO2	PO3
3	Write a note on Representational Power of Perceptron	L3	CO2	PO2
4	Explain the concept of a Perceptron with a neat diagram.	L4	CO2	PO2
5	Discuss the Perceptron training rule.	L3	CO2	PO4
6	Define Delta Rule.	L4	CO2	PO4
7	Derive the Gradient Descent Rule.	L4	CO2	PO3

8	Explain the importance of Stochastic Gradient Descent	L4	CO2	PO2
9	Write the algorithm for Back propagation	L4	CO2	PO3
10	What is Squashing Function?	L5	CO2	PO2

### **UNIT-III**

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	Explain Brute force Bayes Concept Learning	L1	CO3	PO2
2	Define MAP hypothesis. Derive the relation for hMAP using Bayesian theorem.	L1	CO3	PO3
3	What are Consistent Learners?	L1	CO3	PO3
4	Discuss Maximum Likelihood and Least Square Error Hypothesis.	L2	CO3	PO2
5	Describe Maximum Likelihood Hypothesis for predicting probabilities.	L1	CO3	PO2
6	What is conditional Independence?	L1	CO3	PO4
7	Explain Naïve Bayes Classifier with an Example.	L1	CO3	PO4
8	Describe the k-nearest neighbor learning algorithm.	L1	CO3	PO3
9	Summarize the three lazy learning methods.	L1	CO3	PO5
10	Define radial basis functions		CO3	PO3

### **UNIT-IV**

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	What is Reinforcement Learning?	L4	CO4	PO3
2	Explain the Q function and Q Learning Algorithm.	L3	CO4	PO2
3	Describe K-nearest Neighbour learning Algorithm for continues valued target function.	L5	CO4	PO2
4	Define the following terms with respect to K - Nearest Neighbour Learning : i) Regression ii) Residual iii) Kernel Function.	L5	CO4	PO4
5	Explain CADET System using Case based reasoning.	L4	CO4	PO4
6	Explain the two key difficulties that arise while estimating the Accuracy of Hypothesis.	L4	CO4	PO1
7	Explain Binomial Distribution with an example.	L5	CO4	PO3
8	What is Sequential Covering Algorithm	L3	CO4	PO3
9	Write about the Reinforcement learning model.	L5	CO4	PO3
10	Examine the Prolog-EBG.	L4	CO4	PO2

### UNIT- V

S.No	Questions	BT	CO	PO
<b>Part – A (Short Answer Questions)</b>				
1	Compare inductive and analytical learning.	L4	CO5	PO3
2	Explain PROLOG-EGB algorithm	L3	CO5	PO2
3	Explain features of explanation-based learning.	L4	CO5	PO2
4	What is deductive learning?	L5	CO5	PO4
5	Explain KBANN algorithm with an example.	L4	CO5	PO4
6	Explain EBNN algorithm with an example.	L5	CO5	PO1
7	Explain FOCL algorithm.	L5	CO5	PO1
8	Write reinforcement learning algorithm characteristics.	L3	CO5	PO3
9	Explain inductive-analytical approaches to learning.	L5	CO5	PO1
10	Explain using prior knowledge to alter the search objective	L4	CO5	PO2

### Long Questions

### UNIT- I

S.No	Questions	BT	CO	PO																														
Part – B (Long Answer Questions)																																		
1	What do you mean by a well–posed learning problem?	L4	CO1	PO3																														
2	Discuss the perspective and issues in machine learning.	L3	CO1	PO2																														
	Define Concept and Concept Learning. With example explain how the Concept Learning task determines theHypothesis for given target concept.	L4	CO1	PO2																														
3	Discuss Concept learning as search with respect to General to specific ordering of hypothesis.	L5	CO1	PO4																														
4	Describe Find S Algorithm. What are the properties and complaints of Find S.	L4	CO1	PO4																														
5	Illustrate Find S Algorithm over EnjoySport concept. Training instances given below.	L5	CO1	PO1																														
	<table><tr><td>Example</td><td>Sky</td><td>AirTemp</td><td>Humidity</td><td>Wind</td><td>Water</td></tr><tr><td>1</td><td>Sunny</td><td>Warm</td><td>Normal</td><td>Strong</td><td>Warm</td></tr><tr><td>2</td><td>Sunny</td><td>Warm</td><td>High</td><td>Strong</td><td>Warm</td></tr><tr><td>3</td><td>Rainy</td><td>Cold</td><td>High</td><td>Strong</td><td>Warm</td></tr><tr><td>4</td><td>Sunny</td><td>Warm</td><td>High</td><td>Strong</td><td>Cool</td></tr></table>				Example	Sky	AirTemp	Humidity	Wind	Water	1	Sunny	Warm	Normal	Strong	Warm	2	Sunny	Warm	High	Strong	Warm	3	Rainy	Cold	High	Strong	Warm	4	Sunny	Warm	High	Strong	Cool
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	3				Rainy	Cold	High	Strong	Warm																									
4	Sunny	Warm	High	Strong	Cool																													
6	What are appropriate problems for Decision tree learning? OR What are the characteristics of the problems suited for decision tree learning?	L5	CO1	PO1																														
7	Explain the concepts of entropy and information gain.	L3	CO1	PO3																														

8	Discuss Hypothesis Space Search in Decision tree Learning.	L5	CO1	PO1
9	Discuss Inductive Bias in Decision Tree Learning. Differentiate between two types of biases. Why prefer Short Hypotheses?	L4	CO1	PO2
10	Explain the important features that are required to well-define a learning problem.	L4	CO1	PO3

## UNIT- II

S.No	Questions	BT	CO	PO
<b>Part – B (Long Answer Questions)</b>				
1	What is Artificial Neural Network?	L4	CO2	PO3
2	What are the types of problems in which Artificial Neural Network can be applied?	L3	CO2	PO2
3	Explain the concept of a Perceptron with a neat diagram.	L4	CO2	PO2
4	Discuss the Perceptron training rule.	L5	CO2	PO4
5	Under what conditions the perceptron rule fails and it becomes necessary to apply the delta rule	L4	CO2	PO4
6	What do you mean by Gradient Descent?	L5	CO2	PO1
7	What are the difficulties in applying Gradient Descent.	L5	CO2	PO1
8	Write the algorithm for Back propagation	L3	CO2	PO3
9	Explain Binomial Distribution.	L5	CO2	PO1
10	Explain the methods for comparing the accuracy of two hypotheses.	L4	CO2	PO2

## UNIT- III

S.No	Questions	BT	CO	PO
<b>Part – B (Long Answer Questions)</b>				
1	Explain the features of Bayesian learning methods	L4	CO3	PO3
2	Explain the features of Bayesian learning methods	L3	CO3	PO2
3	Discuss the relationship between the maximum likelihood hypothesis and the least squared error hypothesis.	L4	CO3	PO2
4	Explain Bayes optimal classifier.	L5	CO3	PO4
5	Explain Naive Bayes classifier.	L4	CO3	PO4
6	Explain EM algorithm	L5	CO3	PO1
7	Explain Probably learning an approximately correct hypothesis	L5	CO3	PO1
8	Explain sample complexity for infinite hypothesis spaces	L3	CO3	PO3
9	Explain $k$ -nearest neighbor algorithm.	L5	CO3	PO1

10	Write about radial basis function	L4	CO3	PO2
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#### UNIT- IV

S.No	Questions	BT	CO	PO
<b>Part – B (Long Answer Questions)</b>				
1	Write about Genetic algorithms	L4	CO4	PO3
2	Explain briefly about hypothesis space search	L3	CO4	PO2
3	Describe the representation of hypotheses and genetic algorithms used in this	L4	CO4	PO2
4	Write about first order horn clauses .	L5	CO4	PO4
5	How rules are post pruned? Explain with an example	L4	CO4	PO4
6	What is Q function? Write an algorithm for learning Q.	L5	CO4	PO1
7	Explain Induction as inverted deduction	L5	CO4	PO1
8	What is temporal difference learning. Briefly Explain	L3	CO4	PO3
9	Explain generalizing from examples.	L5	CO4	PO1
10	What is generalization to dynamic programming.	L4	CO4	PO2

#### UNIT- V

S.No	Questions	BT	CO	PO
<b>Part – B (Long Answer Questions)</b>				
1	What are inductive and analytical learning problems.	L4	CO5	PO3
2	Explain PROLOG-EBG.	L3	CO5	PO2
3	Explain an algorithm for regressing a set of literals through a single horn clause.	L4	CO5	PO2
4	Describe the TANGENTPROP algorithm to train a neural network to fit both training values and training derivatives.	L5	CO5	PO4
5	Explain the Hypothesis Space Search for Inductive-Analytical Approaches to Learning	L4	CO5	PO4
6	Explain KBANN Algorithm	L5	CO5	PO1
7	Write the remarks of KBANN Algorithm	L5	CO5	PO1
8	Explain EBNN Algorithm	L3	CO5	PO3
9	Write the remarks of EBNN Algorithm	L5	CO5	PO1