



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Artificial Intelligence & Machine Learning (18CS0535) Course & Branch: B.Tech - CSE

Regulation: R18

Year & Sem: IV-B.Tech & I-Sem

UNIT –I

INTRODUCTION

1.	a	Mention the categorization of intelligent systems	[L1][CO1]	[2M]
	b	Define components of AI program.	[L1][CO1]	[2M]
	c	What are the foundations of AI?	[L1][CO1]	[2M]
	d	List characteristics of a problem.	[L1][CO1]	[2M]
	e	Write about the analysis of search methods.	[L1][CO1]	[2M]
2.	a	Explain Foundations of Artificial Intelligence.	[L1][CO1]	[5M]
	b	What are the applications of Artificial Intelligence?	[L1][CO1]	[5M]
3.	a	Describe PEAS for at least four agent types.	[L1][CO1]	[5M]
	b	What are the typical Artificial Intelligence problems?	[L1][CO1]	[5M]
4.		Describe in detail about i) Simple reflex agent. ii) Model based agent. iii) Utility based agent. iv) Goal based agent.	[L1][CO1]	[10M]
5.		Compare and contrast human intelligence to artificial intelligence with examples and applications.	[L4][CO1]	[10M]
6.		Explain in detail about structure of Intelligent agents?	[L1][CO1]	[10M]
7.	a	Explain the role of Artificial intelligence in the future.	[L1][CO1]	[5M]
	b	Discuss about agents and Environments.	[L1][CO1]	[5M]
8.		Define an agent. What are the characteristics of Intelligent agent? Describe typical Intelligent system briefly.	[L1][CO1]	[10M]
9.	a	Compare and contrast various problem solving approaches to typical AI problems.	[L4][CO1]	[5M]
	b	Predict and analyse future application areas of Artificial Intelligence.	[L5][CO1]	[5M]
10.		Explain the components of problem definition with an example.	[L1][CO1]	[10M]

UNIT –II**PROBLEM SOLVING METHODS**

1	a	What is goal formulation?	[L1][CO2]	[2M]
	b	Define initial state.	[L1][CO2]	[2M]
	c	Discuss about path cost.	[L1][CO2]	[2M]
	d	What is parent node and child node?	[L1][CO2]	[2M]
	e	What are the four ways to evaluate an algorithm? Name them?	[L1][CO2]	[2M]
2	a	Describe briefly about problem solving agents with basic algorithm.	[L4][CO2]	[5M]
	b	Write in detail about local search algorithm.	[L4][CO2]	[5M]
3	a	State and explain in detail about optimization problems.	[L5][CO2]	[5M]
	b	Discuss in detail about searching solutions with infrastructure.	[L6][CO2]	[5M]
4		Explain breadth-first search algorithm with one example.	[L1][CO1]	[10M]
5		Elaborate the concept of depth first search and depth limited search.	[L6][CO2]	[10M]
6		Briefly explain about Heuristic search algorithm?	[L2][CO2]	[10M]
7		Write about Hill searching algorithm and Local beam search algorithm?	[L1][CO2]	[10M]
8		Explain about fully and partial observation search algorithm?	[L1][CO2]	[10M]
9		Describe the backtracking search algorithm with examples?	[L4][CO1]	[10M]
10		Tell about alpha – beta pruning?	[L1][CO2]	[10M]

UNIT –III**SUPERVISED LEARNING**

1	a	What is supervised learning?	[L1][CO3]	[2M]
	b	Define classification.	[L1][CO3]	[2M]
	c	What is training data?	[L1][CO3]	[2M]
	d	Discuss short notes on reinforcement learning.	[L6][CO3]	[2M]
	e	What is meant by noise in learning?	[L6][CO3]	[2M]
2	Describe in detail about Vapnik-Chervonenkis Dimension?		[L1][CO3]	[10M]
3	a	Write short notes on Probably Approximately Correct Learning?	[L1][CO3]	[5M]
	b	Explain in detail about maximum likelihood estimation?	[L1][CO3]	[5M]
4	Summarize learning multiple classes?		[L2][CO3]	[10M]
5	Write in detail about Bayesian Decision Theory?		[L2][CO3]	[10M]
6	What is Risk and explain about Parametric Methods?		[L1][CO3]	[10M]
7	Explain in detail about univariate and multivariate tree with an algorithm?		[L2][CO3]	[10M]
8	Describe models in linear discrimination?		[L4][CO3]	[10M]
9	What is Gradient Descent and logistic discrimination?		[L1][CO3]	[10M]
10	Explain in detail about back propagation algorithm?		[L2][CO3]	[10M]

UNIT –IV**UNSUPERVISED LEARNING**

1	a	What is unsupervised learning?	[L1][CO4]	[2M]
	b	Discuss short notes on clustering.	[L1][CO4]	[2M]
	c	Discuss the application of unsupervised learning.	[L1][CO4]	[2M]
	d	Differentiate between supervised learning and unsupervised learning.	[L1][CO4]	[2M]
	e	What are latent variable models?	[L1][CO4]	[2M]
2	Explain in detail about K-Means algorithm?		[L2][CO4]	[10M]
3	Describe in detail about maximization algorithm?		[L4][CO4]	[10M]
4	Illustrate the mixtures of latent variable models?		[L2][CO4]	[10M]
5	Briefly explain hierarchical learning?		[L2][CO4]	[10M]
6	Write briefly about subset selection?		[L2][CO4]	[10M]
7	Discuss principal component analysis?		[L6][CO4]	[10M]
8	Write about factor analysis in unsupervised learning?		[L1][CO4]	[10M]
9	Illustrate in detail about multidimensional scaling?		[L2][CO4]	[10M]
10	Tell about linear discriminate analysis?		[L1][CO4]	[10M]

UNIT –V**REINFORCEMENT LEARNING**

1	a	What is reinforcement learning?	[L1][CO5]	[2M]
	b	Write about density estimation?	[L1][CO5]	[2M]
	c	Discuss about nearest neighbor?	[L1][CO5]	[2M]
	d	Give some example for reinforcement learning?	[L1][CO5]	[2M]
	e	Compare unsupervised learning and reinforcement learning ?	[L2][CO5]	[2M]
2	State and explain non parametric density estimation?		[L4][CO5]	[10M]
3	Analyze the K-nearest neighbor estimator		[L4][CO5]	[10M]
4	Elaborate non parametric classification?		[L6][CO5]	[10M]
5	Justify the condensed nearest neighbor?		[L5][CO5]	[10M]
6	Write in detail about single state case with an example?		[L1][CO5]	[10M]
7	Illustrate in detail about K-armed bandit?		[L2][CO5]	[10M]
8	List and explain in detail about elements of reinforcement learning?		[L1][CO5]	[10M]
9	Elaborate model based learning with an examples?		[L6][CO5]	[10M]
10	Write in detail about partially observables state in learning?		[L1][CO5]	[10M]

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