

Register No : _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Sixth Semester

Biomedical Engineering

CS3491–Artificial Intelligence and Machine Learning

**(Common to sixth semester Electronics and Communication Engineering & Fourth Semester
Computer Science and Engineering & Information Technology)**

Regulations - 2021

Duration : 3 Hrs

Maximum: 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define artificial intelligence.	RE	1	2
2.	Give the application of AI.	UN	1	2
3.	List the needs of probabilistic reasoning in AI.	AN	2	2
4.	State Bayes' rule.	RE	2	2
5.	Compare supervised learning and unsupervised learning.	UN	3	2
6.	Illustrate the concept about support vector machine.	UN	3	2
7.	Inspect ensemble learning.	AN	4	2
8.	Distinguish k-means and KNN.	AN	4	2
9.	Name any four activation function.	RE	5	2
10.	What do you mean by ReLU? Why is it used in deep learning?	AN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Summarize the characteristics of artificial intelligence.	UN	1	7
	ii Compare and contrast blind search and heuristic search.	UN	1	6
	Or			
	b Explain in detail about hill climbing algorithm using 8-queens problems.	UN	1	13
12.	a Compute the variable elimination algorithm for answering queries on Bayesian networks.	UN	2	13
	Or			
	b i Explain the steps to construct a Bayesian network with an example.	UN	2	7
	ii Compare and contrast Bayesian networks and Causal networks.	UN	2	6

13.	a	Explain the principle of the gradient descent algorithm. Accompany your explanation with a diagram.	AN	3	13	
Or						
	b	Examine the concept of decision tree classification algorithm in detail.	AN	3	13	
14.	a	i	Explain in detail on multiple model combination methods with example.	AN	4	7
		ii	Sketch the concepts of bagging and booting. Give the example.	AN	4	6
Or						
	b	Summarize the various learning techniques involved in unsupervised learning.	AN	4	13	
15.	a	Examine the gradient descent optimization with suitable scenarios.	EV	5	13	
Or						
	b	Evaluate the method of “from shallow networks to deep networks” with an examples.	EV	5	13	

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>	<i>Questions</i>			<i>BLT</i>	<i>CO</i>	<i>Marks</i>	
16.	a	i	Analyse the logistics regression with suitable example.	AN	3	8	
		ii	Explain the process of computing coefficient in logistics regression.	AN	3	7	
Or							
	b	Analyse the architecture of single layer perception and multilayer perception with its advantages and disadvantages.			AN	5	15