Name: Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, Dec 2022

Program Name: B.Tech (CSE) AI & ML **Semester : III**
Course Name : Introduction to AI **Time : 3 hr**
Course Code : CSAI 2007 **Max. Marks : 100**
Nos. of page(s) : 2
Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Discuss about Frames with example.	4	CO2
Q 2	Check whether this statement $(P \vee \neg P) \rightarrow (Q \wedge \neg Q)$ is tautology or contradiction.	4	CO2
Q 3	Discuss the application of Artificial Intelligence.	4	CO1
Q 4	Discuss the four steps of Machine learning.	4	CO3
Q 5	Illustrate the difference between Supervised learning and Unsupervised learning	4	CO3

SECTION B

Q 6	Explain Bayes' Theorem. Illustrate with the formula. It is estimated that 50% of emails are spam emails. Some software has been applied to filter these spam emails before they reach your inbox. A certain brand of software claims that it can detect 99% of spam emails, and the probability for a false positive (a non-spam email detected as spam) is 5%. If an email is detected as spam, then what is the probability that it is in fact a non-spam email?	10	CO3
Q 7	Illustrate the concept of Back propagation and dropout in ANN	10	CO3
Q 8	Illustrate PEAS for Medical Diagnosis System	10	CO2
Q 9	Illustrate Confusion Matrix. Write short note about (i) False Positive (ii) False Negative (iii) Accuracy (iii) AUC OR	10	CO4

	Find the Linear Regression equation for the two sets of data as mentioned below. X: 2, 3, 5, 8 Y: 3, 6, 5, 12		
	SECTION-C		
Q 10	Consider the below statements a. John likes all kind of food b. Apple and vegetable are food c. Anything anyone eats and not killed is food. d. Anil eats peanuts and still alive e. Harry eats everything that Anil eats. Prove by resolution that: John likes peanuts. OR Explain Wumpus World Problem. Write the propositional rules for Wumpus World Problem. Prove that Wumpus is in one room	**20**	**CO2**
Q 11	Write a short note on the following topics (i) Entropy (ii) Information Gain How does the tree determine which variable to break at the root node and its child nodes? OR Illustrate the different steps of K-means Clustering Algorithm. Explain it with an example.	**20**	**CO4**