UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: **Introduction to Artificial Intelligence**   Semester: **2nd**
Program: **B. Tech CSE Spz in AIML**   Time **03 hrs.**
Course Code: **CSAI1002**   Max. Marks: **100**

	SECTION A		
Q1	What are the characteristics of AI & what are the various issues with AI?	**4**	**CO1**
Q2	Detail how **conjunctive normal forms** can help in better 'resolution'?	**4**	**CO2**
Q3	With the help of detailed schematic flow diagram, how are the following items related: a. Machine Learning b. Neural Networks c. Genetic Algorithms d. Probabilistic theory e. Knowledge Representation	**4**	**CO1**
Q4	Justify fundamentally how Natural Language Processing is a potential AI solution for demonstrating intelligence?	**4**	**CO1**
Q5	'I like apple'; 'Apple is good'; 'apples has potassium' Convert the following knowledge into propositional logic	**4**	**CO3**
	SECTION B		
Q6	Compare supervised and unsupervised learning from overfitting & underfitting aspects and what is the possible solution to avoid them?	**10**	**CO2**
Q7	Why is Bayesian rule such an important element in AI, detail with example? Define law of total probability? Or Why is Artificial Intelligence a topic of importance in technology development? What distinctions it brings to users?	**10**	**CO3**
Q8	Demonstrate the phases of evolutionary computing with an example from computational aspect?	**10**	**CO4**
Q9	In what respects Bayesian Networks are effective against dynamic relations using random variables	**10**	**CO1**
	SECTION-C		
Q10	Provide solution to the following problem case: You want to develop a research division in your organization. For that you need to convince your boss that it is worthy and profitable decision to establish the research division for the futuristic growth of the organization. Answer **a & b** or **a & c**: a) Define your solution using machine learning process explicit to input and output aspects b) Detail the requirements and working of intermediate stages of solution c) What will be the evaluation criteria for your solution and what will it indicate?	**20**	**CO4**
Q11	Neural network is an effective tool for classification problem cases. Demonstrate how it is with the help of a sample case using network architecture, activation function and outcome.	**20**	**CO2, CO3**