Name: **Enrolment No:**	

UPES

End Semester Examination, May 2024

Course: Knowledge Engineering and Expert System — **Semester : II**

Program: MCA (All Specializations) — **Time : 03 hrs.**

Course Code: CSAI 7014P — **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Discuss how a production system is different from an expert system.	**4**	**CO1**
Q 2	State the differences between deductive, inductive, and abductive reasoning using suitable examples.	**4**	**CO3**
Q 3	Write a prolog program to implement the append function.	**4**	**CO2**
Q 4	Three persons A, B and C have applied for a job in a private company. The chance of their selections is in the ratio 1 : 2 : 4. The probabilities that A, B and C can introduce changes to improve the profits of the company are 0.8, 0.5 and 0.3, respectively. If the change does not take place, find the probability that it is due to the appointment of C.	**4**	**CO4**
Q 5	Draw an AND-OR tree for arriving at UPES from your home. Explore all the possibilities for your journey to the university while considering all the necessary requirements.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Define lattice. Determine if the Hasse diagram for the poset, ({1, 3, 6, 12, 24, 48, 96}, |) is a lattice.	**10**	**CO2**
Q 7	Write a script for your visit to Chepauk stadium at Chennai for watching a cricket match.	**10**	**CO2**
Q 8	Consider the following hypotheses and construct a valid argument for the conclusion, **We will be home by sunset** using the suitable inference rules only. ● It is not sunny this afternoon and it is colder than yesterday. ● We will go swimming only if it is sunny.	**10**	**CO3**

	● If we don't go swimming, then we will take a canoe trip. ● If we take a canoe trip, then we will be home by sunset.		
Q 9	Define five terms from the following in the context of an expert system: a) User interface b) Knowledge base c) Inference engine d) Domain expert e) External interfaces f) Forward chaining g) Backward chaining h) Shallow knowledge i) Deep Knowledge	**2 * 5 = 10**	**CO1**
SECTION-C (2Qx20M=40 Marks)			
Q 10	Consider the following hypotheses: ● Every shark eats a tadpole. ● All large white fish are sharks. ● Tomy is a large white fish living in deep water. ● Any tadpole eaten by a deep water fish is miserable. Prove that **some tadpole is miserable** using the resolution-refutation method.	**20**	**CO3**
Q 11	Write short notes on any four of the following: (A) Markov Chain Process (B) Temporal Reasoning (C) Unification (D) Bayes' Theorem (E) Error and its types attributed to uncertainty	**20**	**CO4**