AI S2023; Scheduled Quiz-2. **15th Apr 2024**

Your Roll No: **Your Name:**

Objective-type questions. A correct answer will get +1 and the wrong answer will get a -0.25 mark.
Your answers should be written on the next page. Do not write anything on this page, except your roll number and name.

1. Lifted inference rules require finding substitutions that make different logical expressions look identical.

   a) Existential Instantiation b) Universal Instantiation c) Unification d) Modus Ponen

2. Regression is _____ problem.

   a) Supervised learning b) Unsupervised learning c) Reinforcement learning d) None of the above

3. In FOL "Richard has only two brothers, John and Geoffrey":
   a) Brother(John, Richard) ∧ Brother(Geoffrey, Richard) ∧ John != Geoffrey∧ ∀x Brother(x, Richard) ⇒ (x = John ∨ x = Geoffrey)
   b) Brother(John, Richard) ∧ Brother(Geoffrey, Richard)
   c) ∀x Brother(x, Richard) ⇒ (x = John ∨ x = Geoffrey)
   d) Brother(John, Richard) ∧ Brother(Geoffrey, Richard) ∧ John != Geoffrey ∃x Brother(x, Richard) ⇒ (x = John ∨ x = Geoffrey)

4. Write the sentence " No faculty at ECE teaches AI" in first-order logic.
   a) $\neg\exists x\ Faculty(x) \vee At(x, ECE) \Rightarrow \neg Teach(AI)$
   b) $\neg\exists x\ Faculty(x) \wedge At(ECE) \Rightarrow Teach(AI)$
   c) $\neg\exists x\ Faculty(x) \wedge At(x, ECE) \wedge Teach(x, AI)$
   d) $\neg\exists x\ Faculty(x) \wedge At(x, ECE) \Rightarrow Teach(x, AI)$

5. Write the sentence "Some students like both Science and Arts" in first-order logic.
   a) $\exists x\ [Student(x) \Rightarrow Like(x, Science) \vee Like(x, Arts)]$
   b) $\neg\forall x\ [Student(x) \Rightarrow Like(x, Science) \wedge Like(x, Arts)]$
   c) $\neg\forall x\ [Student(x) \wedge Like(x, Science) \wedge Like(x, Arts)]$
   d) None of the given

6. Which of the following sentence/s can not be represented using proposition logic?
   a) Some apples are sweet
   b) Where is Rohini
   c) It is raining today, and the street is wet
   d) both a) and b)
   e) all of the given a), b), and c)

7. Which is used to compute the truth of any sentence in propositional logic?
   a) Semantics of propositional logic b) Alpha-beta pruning c) First-order logic d) Both Semantics of propositional logic & Alpha-beta pruning

8. Which form is called a disjunction of conjunction of literals
   a) Conjunctive Normal Form b) Chomsky Normal form c) Disjunctive normal form d) None of the given

9. If KB |= alpha then
   a) Models(KB) is not a subset of Models(alpha) b) Models(alpha) is a subset of Models (KB) c) Models(KB) = Models(alpha) d) none of the given

10. In propositional logic, P⟹ Q is equivalent to
    a) ~ P ∨ Q b) (~P ∨ Q) ∧ (~ Q ∨ P) c) Q ∨ P d) ~(P ∨ Q)

Write your answer in the following Table:

1	2	3	4	5	6	7	8	9	10
c	a	a	c	b	d	a	c	d	a

This is the rough workspace: