

Unit 4- Knowledge

May 2022

1. List the inference rules used in propositional logic? Explain them in detail with suitable example. [9]
<https://youtu.be/Ly71SfHSFkw>
2. Explain syntax and semantics of First Order Logic in detail. [8]
<https://youtu.be/o-YSOBJwvm8>
3. Detail the algorithm for deciding entailment in propositional logic. [8]
4. Explain knowledge representation structure and compare them. [9]

May 2023

1. What is an Agent. Name any 5 agents around you Explain Knowledge based agent with Wumpus World. List and explain in short the various steps of knowledge engineering process. 9 Marks

Agent and any 5 Agents:

Answer: Knowledge Based Agent with Wumpus World:

https://youtu.be/BtYs5T_C-IM

<https://youtu.be/CvsaLtrA-GI>

Knowledge Engineering Process. <https://youtu.be/vhuLDY8uCeg>

2. Consider the following axioms: [9]
If a triangle is isosceles, then its two sides AB and AC are equal,
If AB and AC are equal, then angle B and C are equal
ABC is an equilateral triangle,
Represent these facts in predicate logic.
Explain Inference in Propositional Logic.

Answer : <https://youtu.be/Ly71SfHSFkw>

3. Write the following sentences in FOL (any 2) (using types of quantifiers).

[9]

- i) Every number is either negative or has a square root .
- ii) Every connected and circuit-free graph is a tree .
- iii) Some people are either religious or pious
- iv) There is a barber who shaves all men in the town who do not shave themselves

4. What is Resolution? Solve the following statement by using resolution algorithm. Draw suitable resolution graph. [9]

- i) Rajesh like all kind of food.
 - ii) Apple and vegetables are food.
 - iii) Anything anyone eats and is not killed is food.
 - iv) Ajay eats peanuts and still alive.
- Prove that Rajesh like bananas

Dec 2023

1. Explain Wumpus world environment giving its PEAS representation. 9 Marks

<https://youtu.be/CvsaLtrA-GI>

2. Explain different inference rules in FOL with suitable example. 8 Marks

3. Write an propositional logic for the statement, 10 Marks

- i) "All birds fly"
- ii) "Every man respect his parents"

4. Differentiate between propositional logic and First order logic. 7 Marks

May 2024

1. What is an Agent. Name any 5 agents around you Explain Knowledge based agent with Wumpus World. List and explain in short the various steps of knowledge engineering process. [9 Marks]

Knowledge Engineering Process. <https://youtu.be/vhuLDY8uCeg>

2. Consider the following axioms: [9]

If a triangle is isosceles, then its two sides AB and AC are equal,

If AB and AC are equal, then angle B and C are equal

ABC is an equilateral triangle,

Represent these facts in predicate logic.

Explain Inference in Propositional Logic.

3. Write the following sentences in FOL (using types of quantifiers). [9]

i) All birds fly

ii) Some boys play cricket

iii) A first cousin is a child of a parent's sibling

iv) You can fool all the people some of the time, and some of the people all the time, but you cannot fool all the people all the time.

Answer: <https://youtu.be/GkR-nYB36pI>

4. What is Knowledge Representation using propositional logic? Compare propositional and predicate Logic. 9 Marks

Answer: <https://youtu.be/5BOMSoKYX4Q>