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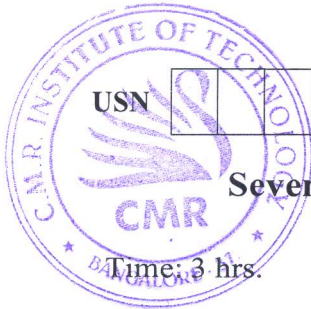
18CS753

Seventh Semester B.E. Degree Examination, Feb./Mar.2022
Introduction to Artificial Intelligence

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1	a.	What do you mean by an Artificial Intelligence techniques?	(05 Marks)
	b.	Demonstrate the turing test with example.	(07 Marks)
	c.	Write short notes on problem area in Artificial Intelligence.	(08 Marks)

OR

2 a. Solve the cryptoarithemetic problem given below with proper steps.

$$POINT$$
$$+ZERO$$
$$\overline{\quad\quad\quad}$$
$$ENERGY$$

(05 Marks)

   b. Explain the four categories of production systems with an example for each. (07 Marks)

   c. Explain the decomposable and non-decomposable problem with an example. (08 Marks)

Module-2

3 a. Differentiate between forward reasoning and backward reasoning. (05 Marks)

   b. Explain the convert to clause form algorithm with an example. (07 Marks)

   c. Consider the following sentences:
   - John likes all kinds of food.
   - Apples are food.
   - Chicken is food.
   - Anything any one eats and is not killed by is food.
   - Bill eats peanuts and still alive.
   - Sue eats everything bill cats

   (i) Convert these into predicate logic.

   (ii) Prove that "John likes peanuts" using back chaining. (08 Marks)

OR

4 a. Write the four properties of knowledge representation system. (05 Marks)

   b. Discuss various issues in knowledge representation. (07 Marks)

   c. Consider the following facts:
   - Marcus was a man.
   - Marcus was a Pompeian.
   - All pompeians were Romans.
   - Caeser was a ruler.
   - All romans were either loyal to caeser or hated him.
   - Everyone loyal to someone.
   - People only try to assassinate rulers they are not loyal to.
   - Marcus try to assassinate ceaser.

   (i) Prove that marcus is not loyal to ceaser by backward substitution.

   (ii) Represent the above statements using instance relationship and ISA relationship.

   (08 Marks)

Module-3

5 a. What is Non-Monotonic reasoning? **(05 Marks)**
 b. Explain default reasoning and minimalist reasoning. **(10 Marks)**
 c. Explain closed world assumptions. **(05 Marks)**

OR

6 a. Define the Bayes theorem. **(05 Marks)**
 b. Explain JTMS and dependency directed backtracking. **(10 Marks)**
 c. Explain Bayesian networks with a diagram. **(05 Marks)**

Module-4

7 a. Explain the steps involved in natural language processing. **(08 Marks)**
 b. Explain the minmax search with an example. **(08 Marks)**
 c. Write an interactive deepening A* algorithm. **(04 Marks)**

OR

8 a. What is conceptual parsing? **(05 Marks)**
 b. Write a short notes on Alpha-beta cutoffs. **(08 Marks)**
 c. Derive the parse tree for the following sentence making use of appropriate grammar: "Bill printed the file". **(07 Marks)**

Module-5

9 a. What is the role of expert system and knowledge acquisition? **(05 Marks)**
 b. Write a note on explanation-based learning and explain rote learning with an example. **(10 Marks)**
 c. Discuss the concept of learning from taking advice. **(05 Marks)**

OR

10 a. What do you mean by expert shell? **(05 Marks)**
 b. Explain Winston's learning program in detail. **(10 Marks)**
 c. Discuss the concept of learning by chunking. **(05 Marks)**

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