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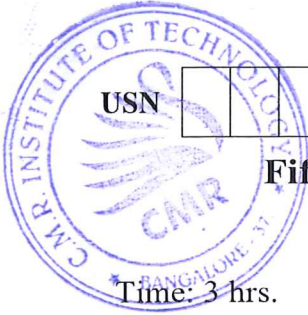
15CS562

Fifth Semester B.E. Degree Examination, June/July 2019
Artificial Intelligence

Time: 3 hrs.

Max. Marks: 80

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

Module-1

1 a. What is AI technique? List less desirable properties and representation of knowledge.
   (08 Marks)

   b. Explain production system with components and characteristics. List the requirement of good control strategies. **(08 Marks)**

OR

2 a. List and explain the AI problem characteristics. **(08 Marks)**

   b. Explain constraint satisfaction and solve the cryptarithmetic problem :
   CROSS + ROADS = DANGER. **(08 Marks)**

Module-2

3 a. List and explain the issues in knowledge Representation. **(08 Marks)**

   b. State and explain the algorithm to convert predicates to clausal form. **(08 Marks)**

OR

4 a. Consider the following predicates
   i)   Man (Marcus)
   ii)   Pompeian (Marcus)
   iii) born (Marcus, 40)
   iv) $\forall x$; man (x) $\rightarrow$ mortal (x)
   v) $\forall x$: Pompeian (x) $\rightarrow$ died (x, 79)
   vi)   erupted (volcano, 79)
   vii) $\forall x : \forall t_1 : \forall t_2$: mortal (x) $\wedge$ born (x, t_1) $\wedge$ gt(t_2-t_1, 150) $\rightarrow$ dead (x, t_2)
   viii) now = 1991
   ix) $\forall x : \forall t : [alive(x, t) \rightarrow$ ~ dead (x, t)] $\wedge [$~dead(x, t) $\rightarrow$ alive(x, t)
   x) $\forall x : \forall t_1 : \forall t_2$: died (x, t_1) $\wedge$ gt (t_2, t_1) $\rightarrow$ dead (x, t_2)

   Prove that : ~ alive (Marcus, now) **(10 Marks)**

   b. What is matching in rule based system? briefly explain the different proposals for matching.
   (06 Marks)

Module-3

5 a. What is non monotonic reasoning? Explain the logics and approaches for non monotonic reasoning. **(08 Marks)**

   b. Why truth maintenance systems are required? Explain different types truth maintenance systems. **(08 Marks)**

OR

6 a. Explain Dempster – Shafer theory with example. **(08 Marks)**

   b. Define semantic net. Represent the following sentence using partitioned semantic net :
   i)   Every dog in town has bitten the constable
   ii)   Every dog has bitten every mail carrier. **(08 Marks)**

Module-4

7 a. Define conceptual dependency. List goals and primitive acts with meaning. **(08 Marks)**

b. Explain the scripts with components. Write the script for the Restaurant. **(08 Marks)**

OR

8 a. State and explain the MINIMAX algorithm with example. **(08 Marks)**

b. Explain iterative deepening. Write algorithms for Depth First iterative depending and Iterative deepening A*. **(08 Marks)**

Module-5

9 a. What is Natural language processing? Explain the steps in process. **(08 Marks)**

b. Explain the spell checking with different techniques. **(08 Marks)**

OR

10 a. What is learning? Explain the Winston's learning program with example. **(08 Marks)**

b. Explain the expert system and knowledge acquisition process, with example. **(08 Marks)**

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