

Roll No. ....

**23074**

**M. Tech. 3rd Semester (Computer Engg.)**

**Examination – December, 2014**

**KNOWLEDGE BASED SYSTEM DESIGN**

**Paper : MTCE-701-A**

**Time : Three Hours ]**

**[ Maximum Marks : 100**

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt any *five* questions. All questions carry equal marks.

1. (a) Write a critical note on 'Chinese Room test'.
- (b) What is problem reduction technique ? How it is differ from state space representation. Represent the following in state space representation.

"Replacing Damaged RAM of your PC"

2. (a) Differentiate between blind search and heuristic search. Write an algorithm for DFS also calculate its time and space complexity. What are the limitation of DFS ?

(b) "AO\* is better than A\*" comment on it.

3. (a) What are the limitations of truth table. How a resolution method removes the limitation of truth table also explain this method ?

(b) Are the following arguments valid ? Prove using semantic tableau.

"If Sam lives in Delhi, he lives in Haryana. Sam lives in Haryana. Therefore Sam lives in Delhi."

4. (a) Express the wff  $(P1 \wedge (rP2 \leftrightarrow P3)) \rightarrow P3$  in CNF.

(b) Convert the following statement into Predicate logic form.

(i) Everybody loves Sam's Grandmother.

(ii) Any two numbers can be added together.

(iii) All humans have 2 eyes.

(iv) If Sam plays he will win

(v) Everybody loves Sam

(c) What is the relationship between "For All" and "There Exist" Quantifiers ?

5. State and prove Dempster - Shapher theory. Also give an example for its illustration.
6. What do you mean by Expert System ? Write its types and application.
7. (a) Discuss various components and types of Agent.  
(b) State and prove Baye's theorem. Also write this theorem for multiple evidence and multiple hypotheses.
8. Explain the following with example :
- (a) Modus Ponens  
(b) Modus Tollens  
(c) Resolution method
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