

22671

M.Tech. 3rd Semester (CSE) CBCS Scheme  
Examination, December-2017  
KNOWLEDGE BASED SYSTEM  
Paper-16CSE23C1

*Time allowed : 3 hours ] [ Maximum marks : 100*

*Note : Attempt five questions selecting one question from each unit and question no. 1 is compulsory.*

1. Write a short note on the following :
  - (a) Differentiate between BFS and DFS. 5
  - (b) Thematic Role Frame. 5
  - (c) Baye's Networks. 5
  - (d) Fuzzy Logic. 5

Unit-I

2. (a) Are the following arguments valid ? Prove using semantic tableau.  
"John or Joyce or both will go to the party. If Joyce goes to the party then Clare will go unless Stephen goes. Stephen will go if John does not go. Therefore Clare will go to the party." 10
- (b) Write a Prolog program for quick sort. 10

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[P.T.O.]

3. (a) Give propositions P, Q, R use the Truth Table method to prove that  $P \vee (Q \wedge R)$  is equivalent to  $(P \vee Q) \wedge (P \vee R)$ . 10
- (b) Convert the following statement into Predicate logic form. 10
- (i) Every natural number is the sum of two natural numbers.
- (ii) Anyone who does not study logic will be frustrated.
- (iii) Everybody loves the prime minister who stopped the war.
- (iv) Some natural numbers are prime.

## Unit-II

4. (a) What is Partition Net? Show partitioned net for the following set of statements: 10
- (i) John believes that pizza is tasty
- (ii) Every student loves to party.
- (b) Explain parallel implementation of semantic networks with example. 10
5. (a) Explain architecture of knowledge based system in detail. 10

- (b) What are thematic role frames? Express the following sentences of information using frames.
- (i) Ram went to the theater with Shyam using car.
- (ii) Arjun hit the ball with racket. 10

## Unit-III

6. (a) Explain Hill Climbing algorithm with detail. 10
- (b) Write the various steps of Depth First Search algorithm in detail. Give suitable example. 10
7. (a) What is Iterative deepening heuristic search? Explain its various steps. 10
- (b) Write the algorithm for A\* strategy. Discuss its various types. 10

## Unit-IV

8. (a) Discuss various components and types of agents. 10
- (b) Explain Dempster Shafer Theory in detail. 10
9. (a) What is an Expert System? Explain its architecture. 10
- (b) State and prove Baye's theorem. Also write theorem for multiple evidence and multiple hypotheses. 10