23074

M.Tech 3rd Semester (I T) Examination,
December–2018

KNOWLEDGE BASED SYSTEM DESIGN

Paper–MTCE-701-A

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

Note : Attempt any five questions in all. All questions carry equal marks.

1. (a) Consider the following: 10

    If I look into the sky and I am alert then either I will see the flying saucer or if am not alert then I will not see the flying saucer.

    Convert it into logical forms and check whether it represents tautology.

   (b) Write a prolog program to solve quadratic equation.   10

2. (a) Convert the following statement into Predicate logic form.   10

    (i) Everybody loves Vidhi's grandmother.

    (ii) Every natural number is the sum of two natural numbers.

    (iii) Some natural numbers are prime.

    (iv) Everyone loves his sibling.

   (b) Are the following arguments valid? Prove using semantic tableau.   10

    "If the violinist plays the concerto, then crowds will come if the prices are not too high. If the violinist plays the concerto, the prices will not be too high. Therefore, if the violinist plays the concerto, crowds will come".

3. (a) What is Semantic Net? Draw semantic net for wooden chair.   10

   (b) What are thematic role frames? Express the following sentences of information using frames: 10

    (i) A man went to the theater with Rajiv using car.

    (ii) Diya brought flower for Ajay.

4. (a) Explain architecture of knowledge based system in detail.   10

   (b) What is Partition Net? Show partitioned net for the following set of statements: 10

    (i) Some teachers are carrying a register.

    (ii) All teachers are carrying a pen.

5. Write note on the following: 20

   (a) Uninformed Search

   (b) A* search algorithm

6. (a) Write the AO* algorithm. Discuss various steps with example.   10

   (b) Write the various steps of Breadth First Search algorithm in detail. Give suitable example.   10

7. (a) What is an Expert System? Draw the architecture of an expert system and explain its components.   10

   (b) Discuss various components and types of agents.   10

8. Write short note on following: 20

   (a) Bayes Theorem

   (b) Dempster Shafer Theory