Printed Pages : 3 **TCS – 603**

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1079 Roll No.

B. Tech.

(SEM. VI) EXAMINATION, 2007-08

ARTIFICIAL INTELLIGENCE

Time : 3 Hours] *[Total Marks : 100*

***Note :** Attempt **all** questions.*

1 Attempt any **four** parts of the following : **5×4=20**

(a) Explain any three applications area of AI in short.

(b) Analyse the following problems with respect to seven problem characteristics :

Water Jug, Travelling Salesman, Cryptarithmetic and Chess.

(c) Write down a heuristic function for travelling salesman problem and 8-puzzle problem and justify.

(d) What is visual perception ? Explain in detail.

(e) What is Simulation ? How it is helpful in AI areas ? Explain with suitable example.

(f) Explain Hill Climbing algorithm in detail.

2 Attempt any **four** parts of the following: 5×4=20

(a) What is conceptual dependencies ? Draw the CD representation for the following sentence :

"Bill threatened John with a broken nose."

(b) What is grammar free analysers ? Explain in detail.

(c) Explain any three parsing techniques in short.

(d) What is transition nets and augmented transition nets ? Explain.

(e) Develop a parse tree for the following sentence :
"Bill loves frog".
And then write down the corresponding context free grammar.

(f) Describe the differences between language understanding and language generation.

3 Attempt any **two** parts of the following: 10×2=20

(a) What is Horn Clause ? Explain various sections of a Prolog program with the help of a suitable example.

(b) Consider the following sentences :
- John likes all kind of food.
- Apples are food.
- Chicken is food.
- Ram likes everything John likes.

(i) Convert these sentences into first order predicate logic.

(ii) Covert these to clause form.

(c) What is fram ? Differentiate it with a sementic net by giving suitable example.

4   Attempt any **two** parts of the following: 10×2=20

   (a)   What do you mean by Expert System ? Explain in
         detail.

   (b)   What is Inference Engine ? Define meta knowledge
         and explain self explaining system.

   (c)   Compare the features of MYCIN and DENDRAL.

5   Attempt any **four** parts of the following: 5×4=20

   (a)   What is pattern recognition ? Explain in detail with
         suitable example.

   (b)   What do you mean by object identification ? Explain.

   (c)   Explain speech recognition in detail.

   (d)   Explain various list manipulation functions of LISP.

   (e)   Explain Backtracking of Prolog by giving a suitable
         example.

   (f)   What is symbolic description ? How it is different
         from structured description.

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