



Printed Pages : 3

TCS - 603

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

PAPER ID : 1079

Roll No.

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## 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, Cryptarithmic 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.

