Printed Pages—3 II- Shift- 5/1/11 TIT702

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

PAPER ID : 0151 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. VII) ODD SEMESTER THEORY EXAMINATION

2010-11

ARTIFICIAL INTELLIGENCE

Time : 3 Hours *Total Marks : 100*

Note : Attempt **all** questions.

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

   (a) What is AI ? Explain any five applications of AI in short.

   (b) What is heuristic search ? Explain with example. Also write heuristic function for :

      (i) Hill climbing problem

      (ii) Tic-tac-toe.

   (c) Differentiate between strong AI and weak AI.

   (d) Prove that Breadth first search and depth first search are special cases of best first search.

   (e) Describe how Branch and Board techniques could be used to find the shortest path solution to a travelling salesman problem.

(f) Solve the following crytarithmetic problem :

SEND

+ MORE

MONEY

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

(a) Derive the parse tree for the sentence "Bose Loues the fish" where following rewrite rules are used :

$S \rightarrow NPVP$, $NP \rightarrow N$, $NP \rightarrow DETN$

$VP \rightarrow VNP$, DET — the, $V \rightarrow$ Loues

$N \rightarrow$ Bose / fish

(b) Draw a conceptual depency diagram for following sentence :

"John wanted Mary to go to shop".

(c) Explain syntatic analysis in short.

(d) Explain the Transition Networks with help of suitable example.

(e) What is sentence level processing ? Explain with an example.

(f) Explain various terms used in sentence generation.

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

(a) What is Minskey Frames System Theory ?

(b) Describe semantic net and frames with suitable example.

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(c) Convert following sentence into predicate logic and then its clause form :

(i) Marcus was a Man.

(ii) Ceaser was ruler.

(iii) Everyone is loyal to save one

(iv) Marcus try to assisinate Ceaser.

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

(a) Explain the working of DENDRAL export system.

(b) What is knowledge and Meta knowledge ? Explain in detail.

(c) Write notes on the following :

(i) Limitation of Export System

(ii) Self explaining system.

5. Attempt any **two** parts of the following : **(10×2=20)**

(a) (i) Explain approches for pattern recognition techniques.

(ii) What are the problems associated with speech recognition ?

(b) (i) Write a function in USP that computes prime number between 1 to 20.

(ii) Write down the main features of PROLOG language.

(c) Write short notes on the following :

(i) Computer vision

(ii) Machine perception.