

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

PAPER ID : 0151

Roll No.

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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 cryptarithmic 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 → NPVP, NP → N, NP → DETN

VP → VNP, DET → the, V → Loues

N → Bose / fish

(b) Draw a conceptual dependency 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 Minsky Frames System Theory ?

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

(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.