



Printed Pages : 3

TIT-702

(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) EXAMINATION, 2008-09  
ARTIFICIAL INTELLIGENCE***Time : 3 Hours]**[Total Marks : 100*

- Note :**
- (i) *Attempt all questions.*
  - (ii) *All questions carry equal marks.*
  - (iii) *Be precise in your answer.*
  - (iv) *No second answer book will be provided.*

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

- (a) What is Artificial Intelligence and Natural Intelligence ?
- (b) Differentiate between strong AI and weak AI.
- (c) What are the different branches of Artificial Intelligence (AI) ?
- (d) Give an instance of the travelling salesman problem for which the nearest neighbour strategy fails to find an optimal path. Suggest another heuristic for this problem.

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(e) Explain various hardware and software components of AI System.

(f) Explain various types of heuristic.

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

(a) What is natural language processing ?

(b) Derive the parse tree for the sentence "Base Loues the fish", where the following rewrite rules are used :

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

$VP \rightarrow VNP$ ,  $DET \rightarrow \text{the}$ ,  $V \rightarrow \text{loues}$

$N \rightarrow \text{Bose/fish}$

(c) Describe the Transformational Grammars with suitable examples.

(d) What is the basic process for building conceptual dependency structure ?

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

(f) Explain the various terms used in sentence generation.

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

(a) Describe meaning of knowledge representation and knowledge acquisition.

(b) What is Minsky Frames System Theory ?

(c) What is Semantic Nets ? Explain the properties of Semantic nets.



- (a) What is expert system ? Explain the architecture of an expert system.
- (b) Write a short note on DENDRAL.
- (c) Write a short note on limitations of experts systems.

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

- (a) Explain approaches for pattern recognition techniques.
- (b) What are the problems associated with speech recognition ?
- (c) Write an LISP program to convert Centigrade temperature to Fahrenheit.
- (d) Define a function called first-element that takes a list as its argument and returns the first top element of the list.
- (e) Trace the search sequence PROLOG follows in satisfying the following goal :  
? - member (C, [a, b, c, d])
- (f) Differentiate b/w pattern recognition and speech recognition.

