Printed Pages : 3

TIT-702

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

PAPER ID : 0151   Roll No.

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.

0151]   1   [Contd...

(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 → NPVP, NP → N, NP → DETN
VP → VNP, DET → the, V → loues
N → 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 Minskey Frames System Theory ?

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

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

   (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 Centrigrade 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.

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