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

PAPER ID : 1079   Roll No.

B.Tech.

(SEM VI) EVEN SEMESTER THEORY EXAMINATION, 2009-2010

ARTIFICIAL INTELLIGENCE

Time : 3 Hours   *Total Marks : 100*

Note : *Attempt ALL the questions.*

1.   Attempt **any four** parts of the following :   (4x5=20)

(a)   Explain the term "Artificial Intelligence". Also give the major characteristics of AI.

(b)   What do you understand by heuristics ? How heuristic is used in "Hill Climbing and Steepest Hill Climbing algorithm" ?

(c)   Differentiate between breadth first search and depth first search, also give an example.

(d)   Discuss the basic elements of natural language processing.

(e)   What do you understand by Production rules ? Also write Production rules for "Water-Jug problem".

(f)   Discuss about visual perception in brief.

2. Attempt **any four** parts of the following : (4x5=20)

(a) What is parsing ? Explain the techniques of parsing a sentence.

(b) Explain transition nets and augmented transition nets.

(c) Differentiate between Context Free Grammar and Transformational Grammar.

(d) How would the following sentence be represented in a filomer's grammar (case structure) ?
   (i) John flew to Newyork
   (ii) The co-pilot flew the plane

(e) Write a short note on Sharks Conceptual Dependency.

(f) Differentiate between bottom up parsing and top-down parsing with examples.

3. Attempt **any two** parts of the following : (2x10=20)

(a) Discuss the major approaches to knowledge representation in detail.

(b) Convert following sentence into predical logic and then prove "Marcus is dead" :
   (i) Marcus was a man
   (ii) Marcus was a pompeian
   (iii) Marcus was born in 40 AD
   (iv) All men are mortal
   (v) All pompeians died when the volcano erupted in 1979
   (vi) No mortal lives longer than 150 yrs
   (vii) It is now 1991
   (viii) Alive means not dead
   (ix) If someone dies, then he is dead all later times.

(c) Write short notes on following :
   (i) Minskey frames
   (ii) Forward and Backward deduction

4. Attempt **any two** parts of the following : (2x10=20)

(a) Explain the characteristics of an "Expert System". Write down the major features of expert system "MYCIN".

(b) How the expertise transfer take place in an expert system ? Explain in detail with an example.

(c) Write short notes on following :
   (i) Meta knowledge
   (ii) Uncertainty management

5. Attempt **any two** of the following : (2x10=20)

(a) How Symbolic description is different from structured description ? Explain through an example. Also write the advantages of structured description.

(b) (i) How to write a program using PROLOG language ?
   (ii) Write down the various data types in LISP language and their syntax.

(c) Write short notes on following (**any two**) :
   (i) Object Identification
   (ii) Pattern Recognition
   (iii) Speech Recognition

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