

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

PAPER ID : 1079 Roll No.

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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 799
 - (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.

3. Write short notes on following :

- (i) Minsky 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) How to write a program using PROLOG language ?
 - (i) 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