

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

PAPER ID : 2875

Roll No.

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B.Tech.

(SEM. VII) ODD SEMESTER THEORY EXAMINATION 2012-13

ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Total Marks : 100

Note :—Attempt all questions.

1. Attempt any **FOUR** parts of the following :

5x4

- Explain the term artificial intelligence.
- Describe the role of machine intelligence in human life.
- What is an intelligent agent ? Describe basic kinds of agents program.
- Describe the role of artificial intelligence in natural language processing.
- Describe the role of computer vision in artificial intelligence.
- Prepare a note describing the role of machine intelligence in game playing.

2. Attempt any **TWO** parts of the following :

10x2

- Derive the expressions for time and space complexity of breadth-first and depth-first search strategies.

(b) Write the brief notes on the following .

(i) N-Queen Problem

(ii) Hill climbing search.

(c) Describe A* search technique. Prove that A* is complete and optimal.

3. Attempt any **TWO** parts of the following : 10 x 2

(a) Determine whether the following argument is valid :
"If I work whole night on this problem, then I can solve it. If I solve the problem, then I will understand the topic. Therefore, I will work whole night on this problem, then I will understand the topic."

(b) Describe the process of natural deduction for investigating the validity of an argument. Explain your answer by choosing a suitable example.

(c) Describe Bayesian network technique of knowledge representation. How does it useful in representing uncertainty knowledge ?

4. Attempt any **TWO** parts of the following : 10 x 2

(a) Describe statistical learning models in detail.

(b) What is clustering ? Describe k-mean clustering technique.

(c) What is reinforcement learning ? Differentiate between passive reinforcement learning and active reinforcement learning.

5. Write short notes on any **FOUR** of the following :

(a) Statistical pattern recognition

(b) Parametric estimation techniques

(c) Pattern matching

(d) Speech Processing

(e) Support vectors

(f) Classification Techniques.