

(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 :
 - (a) Explain the term artificial intelligence.
 - (b) Describe the role of machine intelligence in human life.
 - (c) What is an intelligent agent ? Describe basic kinds of agents program.
 - (d) Describe the role of artificial intelligence in natural language processing.
 - (e) Describe the role of computer vision in artificial intelligence.
 - (f) Prepare a note describing the role of machine intelligence in game playing.
2. Attempt any **TWO** parts of the following :
 - (a) 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 :

(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 :

(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.