

(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) THEORY EXAMINATION 2011-12

ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Total Marks : 100

Note :— Attempt **all** questions. Each question carries equal marks.

1. Attempt any **four** parts of the following : **(5×4=20)**
 - (a) What do you mean by artificial technique ?
 - (b) Write a short note on the foundations of artificial intelligence.
 - (c) What did the main contributions of John McCarthy for the establishment of artificial intelligence as a new discipline ?
 - (d) What do you mean by agent program ? How do you assure that an agent program is an intelligent agent program ?
 - (e) Describe the role of computer vision in artificial intelligence.
 - (f) Prepare a short note on the state-of-the-art of artificial intelligence.

2. Attempt any **two** parts of the following : **(2×10=20)**
 - (a) What are the different parameters are used to evaluate a search technique ?

- (b) Show that the depth first search technique is neither complete nor optimal.
- (c) Describe A* search technique. Prove that A* is complete and optimal.

3. Attempt any **two** parts of the following : **(2×10=20)**

(a) Prove that following statements are inconsistent.

(i) John loves Mary and Reddy is not happy but her parents are happy.

(ii) If John marries Mary then William and her friend Reddy will be happy.

(iii) John will marry Mary if Mary loves John.

(b) 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."

(c) Describe Bayesian networks. How are the Bayesian networks powerful representation for uncertainty knowledge ?

4. Attempt any **two** parts of the following : **(2×10=20)**

(a) Differentiate between supervised and unsupervised learning techniques.

(b) Illustrate decision trees learning technique using a suitable example.

(c) Write a note on naïve Bayes model.

5. Write short notes on any **four** of the following : **(4×5=20)**

(a) Statistical pattern recognition

(b) Parametric estimation techniques

(c) Pattern matching

(d) Speech processing

(e) Support vectors

(f) Classification techniques.