Printed Pages : 3

ECS801

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

PAPER ID : 110801

Roll No.

B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15

ARTIFICIAL INTELLIGENCE

Time : 3 Hours] [Total Marks : 100

Note: Attempt all questions.

1 Attempt **any four** parts of the following: 5×4=20

(a) Explain the term artificial intelligence. How does it differ from general intelligence?

(b) Describe the role of different disciplines in the emergence of artificial intelligence as a new science.

(c) What is an agent program? Describe the structure of a typical agent program.

(d) List some of the state-of-the-art applications of the artificial intelligence.

(e) Describe the role of artificial intelligence in computer vision.

(f) How does a language processing system work.

2 Attempt **any two** parts of the following: **10×2=20**

(a) Describe the role of artificial intelligence in search. Illustrate your answer using 8-queens problem.

(b) Explain BFS and DFS search techniques in detail.

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

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

(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) Define Hidden Markov Model (HMM). Illustrate how HMMs are used for speech recognition.

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

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

(a) What do mean by machine learning? Illustrate any two supervised learning techniques.

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

(c) Elaborate Naive Bayes model in detail.

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

(a) Pattern Recognition System

(b) Principle Component analysis

(c) Discriminant Component Analysis

(d) Clustering

(e) Support vector machine

(f) Artificial neural networks
