ECS-801

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

PAPER ID : 113701

Roll No.

B. Tech.

(SEM. VII) (ODD SEM.) THEORY EXAMINATION, 2014-15

ARTIFICIAL INTELLIGENCE

Time : 3 Hours] [Total Marks : 100

Note: (i) Attempt all questions.

(ii) All questions carry equal marks.

Attempt any four parts of the followings : 5×4=20

(a) What are the different branches of Artificial Intelligence?Discuss some of the branches and progress made in their fields.

(b) Why is game playing is good candidate of A.I?Explain.

(c) Write a short note on the foundation of A.I.

(d) Describe the role of Computer Vision in Artificial Intelligence.

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(e) What do you mean by agent program? How do you assure that an agent program is an intelligent agent program?

(f) Describe the role of Artificial Intelligence in Natural Language Processing.

2 Attempt any four parts of the followings : **5×4=20**

(a) What are the different parameters used to evaluate a search technique?

(b) Prove that breadth first search is a special case of uniform cost search.

(c) What is production system? Explain the various types of production system.

(d) Give the production rules for travelling salesman problem.Consider that four cities A,B,C and D are given.

(e) Why heuristic search is better than the blind search?

(f) Give an example of game tree.What is the purpose of minimax procedure in a game tree?

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

(a) Briefly describe the meaning of knowledge representation and knowledge acquisition. What procedure is followed for knowledge acquisition? Explain.

(b) Translate the following sentences into formulas in Predicate Logic and Clausal Form:

(i) John likes all kind of food.

(ii) Apples are food.

(iii) Chicken is food.

(iv) Anything any one eats and is not killed by is food.

(v) Bill eats peanuts and is still alive.

(vi) Sue eats everything Bill eats.

(c) What is probabilistic reasoning? Also describe the role HMM in probabilistic reasoning.

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

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

(b) Explain learning with complete data –*Naive Bayes* Models and learning with hidden data-EM *algorithm.*

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(c) Explain the following terms:

(i) Maximum a posteriori(MAP).

(ii) Maximum likelihood hypothesis.

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

(a) Explain how PCA is used in pattern recognition. Describe parameter estimation methods in pattern recognition.

(b) Describe in brief the various feature extraction and selection methods in pattern recognition.

(c) Explain speech recognition in detail. Write its application.

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