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NMCA-413

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

PAPER ID : 214427

Roll No.

MCA

(Sem.-IV) Even Semester

EXAMINATION, 2014-15

ARTIFICIAL INTELLIGENCE

Time : 3 Hours] *[Total Marks : 100*

Note: Attempt all questions. All question carry equal marks.

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

   (a) What is artificial intelligence? Does artificial intelligence is same as computational intelligence?

   (b) Describe the role of McCarthy in establishing artificial intelligence as a new discipline of computer science.

   (c) What is an intelligent agent? Describe basic kinds of agents program.

(d) Image Analysis

(e) Support Vector Maching (SVM)

(f) Probabilistic reasoning.

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(d) Define Turing test. Does Turing test is sufficient to define the operational definition of artificial intelligence.

(e) Describe the role of artificial intelligence in game playing.

(f) What is natural language processing? Explain your answer with examples.

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

(a) Compare and contrast between informed and uninformed search.

(b) Describe A * search technique and prove that it is complete and optimal.

(c) Explain a local search algorithm by considering a suitable example.

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

(a) i) Determine whether the following argument is valid:

"All dogs bark. Some animals are dogs. Therefore, some animals bark."

ii) State contrapositive theories with example.

(b) Explain the following rules in detail in the context of logic theory :

i) Rules of inference

ii) Rules of indirect proof

(c) What is a Bayesian network? How does the Bayesian network is used in representing the uncertainty about knowledge?

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

(a) What is unsupervised learning? Describe any two unsupervised learning techniques in detail.

(b) Define the term clustering. Describe the K-mean clustering in detail.

(c) Write short notes on the following data representation techniques :

i) Principal component analysis (PCA)

ii) Linear discriminant analysis (LDA)

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

(a) Pattern recognition system

(b) Hidden Markov Models

(c) Knowledge in learning