**53 (CS 711) ARIN**

**2013**

(May)

# ARTIFICIAL INTELLIGENCE

Paper : CS 711

*Full Marks : 100*

*Pass Marks : 30*

Time : Three hours

***The figures in the margin indicate full marks for the questions.***

*Answer **any five** questions.*

1. *(a)* What do you mean by artificial intelligence? What is its importance? Explain its use in various fields. 2+3+5=10

   *(b)* What is inferencing? Explain the different inferencing rules. 2+8=10

2. *(a)* Define the terms interpretation, tautology, contradiction, valid and satisfiable in terms of propositional calculas. 2×5=10

(b) Explain the the terms universal and existential quantifiers with suitable examples. Define resolution with a suitable example. 3+2+4=10

3. (a) What is heuristic search? Show its application with a suitable example. 2+8=10

(b) What is hill-climbing? Describe the problems that arise during hill-climbing. How to overcome these problems? 1+6+3=10

4. (a) Explain representation of knowledge with an example. 5

(b) Represent the following sentences in predicate calculas : 1+2+2=5

(i) Man is moral.

(ii) All man eat to live.

(iii) Some men are vagetarian.

(c) Write the steps for clausal conversion procedure. 10

5. *(a)* Define learning automata. How the temperature in an office can be set with a learning automata ? 2+8=10

*(b)* What is learning? Explain how does learning model work ? 2+8=10

6. *(a)* Explain the concept of multilayer neural network. How do supervised and unsupervised learning work in a neural network? 4+3×2=10

*(b)* What is alpha-beta pruning? Show the use of alpha-beta pruning in minimax procedure. 2+8=10

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

*(a)* A* algorithm

*(b)* Iterative deepening search

*(c)* State space search

*(d)* Breadth first search (BFS)

*(e)* Perception and action

*(f)* Propositional logic

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