2013

Time: 3 hours

Full Marks: 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Objective Type Questions)

Answer all questions of the following: 2 × 10 = 20

1. (a) ________ is a system that uses production rule to represent its knowledge.

(i) EBL

(ii) Analogy

(iii) SOAR

(iv) Rote

UK – 16/3  (Turn over)
(b) How many types of AI tasks?
   (i) 3
   (ii) 6
   (iii) 4
   (iv) 2

(c) Knowledge is represented in rule form is called ________ based system is Expert System.
   (i) Prolog
   (ii) Rule
   (iii) Schema
   (iv) Knowledge

(d) Key point Heuristic are ________.
   (i) Fallible
   (ii) Implemented
   (iii) Limited
   (iv) None of the above
(e) Time complexity of Breadth-First Search is

(i) $O(bt)$
(ii) $O(b^t)$
(iii) $O(bd)$
(iv) None of the above

(f) _______ networks are an alternative to predicate logic as a form of knowledge representation.

(i) Prolog
(ii) Frames
(iii) Semantic
(iv) None of the above

(g) _______ is a computer program typically used to provide some form of Artificial Intelligence.

(i) Intelligence System
(ii) Production System
(iii) Knowledge System
(iv) None of the above
(h) ________ is the area of Computer Science focusing on creating machines that can engage in behaviours that humans consider intelligent.

(i) Knowledge base
(ii) Artificial Intelligence
(iii) Researchers
(iv) None of the above

(i) ________ knowledge is accumulated about the world.

(i) Long term
(ii) Short term
(iii) Low term
(iv) None of the above

(j) ________ is an area of the state space where the evaluation function is nearly flat.

(i) Ridges
(ii) Plateau
(iii) Local maxima
(iv) None of the above

Group – B

(Long-answer Type Questions)

Answer any four questions of the following:

15 \times 4 = 60


3. Define Rule in Prolog. Represent the following statement using Prolog.
   
   John eats all kinds of food
   Apple is food
   Cake is food
   Anything anyone eats is food
   Ram eats ice cream
   Salim eats anything Ram eats

UK – 16/3 (5) (Turn over)
4. Illustrate how to define a problem as a state space search with a suitable example.


7. Write algorithm for propositional resolution and Unification algorithm. Explain, in detail, about non-monotonic reasoning with an example.

8. What is heuristic? Define heuristic function. Give an example of heuristic that is useful for combinatorial problem.

9. Explain with example the difference between declarative and procedural knowledge.

UK – 16/3 (6) Contd.
10. What is the knowledge representation supported by expert system tools? What is the task domain of AI? List the properties of knowledge.