Total No. of printed pages = 3

CS 131801

Roll No. of candidate | | | | | | | | | | |

2020

B.Tech. 8th Semester End-Term Examination

Computer Science

ARTIFICIAL INTELLIGENCE

Full Marks – 50 Time – Two hours

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

1 Marks Questions : Answer any *five* (5) questions. $(5 \times 1 = 5)$

1. (a) Give the rational definition of AI?
   (b) What is the need of Heuristic Function?
   (c) Give the characteristics of Propositional Logic.
   (d) Define rule based learning in AI.
   (e) What are expert systems?
   (f) What is declarative knowledge?
   (g) What is A^* algorithm?
   (h) Define Strong AI?
   (i) Why production rules are needed in AI?
   (j) What is logic programming?

[Turn over

15 Marks Questions : Answer any *three* (3) questions.

$(3 \times 15 = 45)$

2. (a) What are the desirable properties of knowledge representation? (7)

   (b) Explain supervised learning, reinforcement learning, and unsupervised learning. (8)

3. (a) Explain various blind search strategies. (10)

   (b) Explain any four approaches to AI. (5)

4. Write short notes on following terms : $(3 \times 5 = 15)$

   (a) Neural Network

   (b) Stimulated annealing

   (c) Natural Language Processing.

5. (a) What are the prominent features of an expert system and describe their features in detail? (9)

   (b) Differentiate between forward and backward reasoning. (6)

6. (a) Explain heuristic search method for constraint satisfaction problem. (9)

   (b) Write about AO* algorithm. (6)

7. (a) Solve Tic-Tac-Toe problem using state space representation. (5)

   (b) Explain MinMax algorithm. (5)

(c) Convert the following English statement to statements in first order logic. (5)

(i) Every boy or girl is a child.

(ii) Every child gets a doll or a train or a lump of coal.

(iii) No boy gets any doll.

(iv) No child who is good gets any lump of coal.

(v) Jack is a boy.

8. (a) Define Conceptual dependency. Give conceptual dependency representation for : (8)

(i) Joe pushed the door

(ii) I gave book to Ram

(b) Explain Alpha-beta pruning with an example. (7)

9. (a) Give the difference between Deductive and inductive learning. (5)

(b) Give the difference between Industrial robotics and conventional robotics. (5)

(c) Write the components of a planning system. (5)

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