

03 June & 4 June

S.No. : 467

MCA 2413

No. of Printed Pages : 05

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

PAPER ID : 21214

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MCA Examination 2018-19

(Even Semester)

ARTIFICIAL INTELLIGENCE

Time : Three Hours

[Maximum Marks : 60]

Note :- Attempt all questions.

SECTION - A

1. Attempt all parts of the following : $8 \times 1 = 8$

- (a) Define an agent.
- (b) Describe theorem proving is a field of AI.
- (c) What is heuristic Search?
- (d) What is Uniformed Search?
- (e) Define semantic Net.
- (f) Define Bayer Rule.

[P. T. O.]

- (g) What is Role Learning?
 (h) What is Mycin?

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$
- (a) Describe different types of agent with suitable diagram.
- (b) Solve the problem of tower of Hanoi with 3 discs and 3 towers using A* algorithms. Heuristic to be used for the problem is how many discs are in the wrong tower. Path cost of each path is assumed to be 1.
- (c) Explain minimax algorithms with an example. How it is used in Game Playing?
- (d) Differentiate between semantic Net and partitioned semantic net with example.

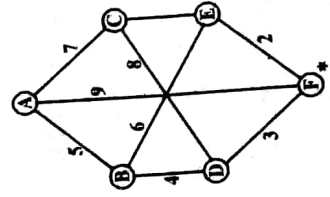
SECTION – C

- Note :-** Attempt all questions from this section. $5 \times 8 = 40$
3. Attempt any two parts of the following :
- (a) Describe the term problem. How is the problem defined as “State Space Search”?

- (b) You are given two Jugs, a 4-gallon and a 3-gallon. Neither has measuring marks on it. There is a pump that can be used to fill the Jugs with water. Write a production system and apply the production rule to obtained a solution of getting exactly 2 gallon of water in to the 4 gallon Jug.
- (c) Differentiate between BFS and DFS algorithms with examples.
4. Attempt any two parts of the following :
- (a) Trace the constrain satisfaction procedure solving cryptarithmic problem :

SEND
 MORE
MONEY

- (b) Using branch and bound search algorithms find the shortest path and path cost of finding goal node. Where A* is a goal node.



- (c) Represent following facts in predicate logic :
- (i) Marcus was a man
 - (ii) Marcus was a Pompeian
 - (iii) All Pompeian were Romans
 - (iv) Caesar was ruler
 - (v) All Romans were either loyal to Ceasar or hated him

5. Attempt any two parts of the following :

- (a) What is Frame? How knowledge can be expressed in the form of frame? Justify a single frame is rarely important.
- (b) What is Conceptual Dependency? Write set of primitive acts and set of primitive action of conceptual dependency with proper mining.
- (c) What are the steps in the processing of natural language? Describe.

6. Attempt any two parts of the following :

- (a) Describe expert system. What are the procedure of developing expert system?

- (b) Differentiate between role learning and learning by induction.
- (c) Write short notes on the following :
 - (i) Mycin
 - (ii) Blackboard system
