Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

III SEMESTER MCA

END SEMESTER EXAMINATIONS, NOV/DEC - 2018

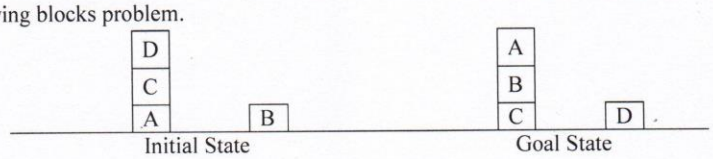
SUBJECT: ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS [MCA 5009]

REVISED CREDIT SYSTEM
(27/11/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A.	You are given two jugs, a 5-liters one and a 3-liters one. Neither has any measuring markers on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 4 liters of water into the 5-liters jug? Write a state space search for the above problem and give a solution steps.	**5**
1B.	State the Missionaries and Cannibals problem precisely and analyze along 3-4 problem characteristics (dimensions) of the problem.	**3**
1C.	Briefly describe the Turing Test.	**2**
2A.	What is Heuristic function? State local and global heuristic functions used in the solutions to the blocks world problem also give NEXT 2 Best moves for the following blocks problem.  Initial State Goal State	**5**
2B.	Write Best-First search algorithm. Discuss its importance in achieving AI.	**3**
2C.	What is Non-monotonic reasoning?	**2**
3A.	What is PEAS description of an agent? Write a PEAS description of the task environment for an automated taxi.	**5**
3B.	What is Circumscription? Explain with suitable example.	**3**

3C.	What is Alpha-Beta pruning?	2
4A.	What are Semantic Networks? Draw a semantic network for the following knowledge: *All vehicles have a brand name and a model. John has a BMW car, model 850. Its colour is red having registration number KA 20 M 1234.*	5
4B.	Convert the following English sentences into its predicate forms - John is not tall - All students are smart - Everyone in the world is a student and is smart - There is a student who is smart - Everyone in the world is loved by at least one person.	3
4C.	What is a Bayesian Belief Network?	2
5A.	What are the different activities involved in building an Expert System? Explain.	5
5B.	What is supervised learning? Explain learning agent with an agent architecture.	3
5C.	What is an Agent Program? Compare an Agent perception system with human perception system	2