



**DOON UNIVERSITY,
DEHRADUN**

**Mid Semester Examination, 2016-17
School of Technology**

**Integrated M.C.A. (Semester VI)
Course: STM – 539 Artificial Intelligence**

Time Allowed: 2Hours

Maximum Marks: 30

SECTION A

Attempt all of the following

(6×1=6 Marks)

1. What is the structure of an agent?
2. What is the rule base?
3. Define the term expert system.
4. How is a predicate different from a proposition?
5. What is the fitness function?
6. What is *Modus ponens*?

SECTION B

Attempt any 4 questions

(4×3=12 Marks)

7. Write down the steps of any supervised learning method. How is it different from unsupervised method?
8. Explain the term intelligent agent. How does an agent interact with its environment?
9. Find whether argument (c) is valid or not on the basis of given information (a) and (b). Justify your answer.
 - (a). If it is raining, Hari is not going for a walk.
 - (b). Hari is not going for a walk.
 - (c). Since Hari is not going for a walk, it must be raining.
10. What are the limitations of DFS? How can these be overcome?
11. Explain how recursive solution works on n -queens problem. Can it be generalized for any value of n ?

SECTION C

Attempt any 2 questions

(2×6=12 Marks)

12. Find the state space for given intermediate stage with goal as the last cell at rightmost column to be empty.

1	2	3
4	5	6
	7	8

13. Explain KNN or K-Means algorithm. Write down the proper steps.

14. In order to write a program in C language to calculate the factorial of any number, the programmer chooses to write a function `factorial()` and this function is called in `main()` function. The function `main()` will comprise variables and other declarative statements and a function call whereas the function `factorial()` may be written in two ways– recursive or loop based. The recursive function has variables and other declarative statements (if any) and a recursive function call. The loop based function has variables and other declarative statements and any of the available loops. Design appropriate AND-OR tree for the program on the basis of given information.

(End of the Paper)