Registration no:

Fifth Semester Regular/Back Examination – 2016-17
ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM
BRANCH: MCA
Time: 3 Hours
Max marks: 70
Q Code:Y134
**Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.**

Q1	Answer the following questions:	(2 x 10)
a)	Define a rational agent.	
b)	What are the major components of an AI system?	
c)	Explain 8-puzzle problem as a heuristic search problem.	
d)	Convert ((P=>Q)=>R) into CNF.	
e)	What is a Horn clause? Give an example.	
f)	Describe the method to reason uncertain knowledge.	
g)	What are important challenges in Natural Language Understanding?	
h)	What is learning by discovery?	
i)	Explain the relationship between expert systems and Neural Nets.	
j)	Give the difference between A^* and AO^* algorithm.	

Q2 a)	Discuss problem reduction strategy of a problem with an example.	(5)
b)	Describe the different task environments in AI.	(5)

Q3 a)	How state space search work on state space of an AI problem? Explain it with the help of water jug problem.	(5)
b)	Discuss and compare Blind Search with heuristic based Search. Which one is better? Explain with an example.	(5)

Q4   The following statements are given: (10)
      i)   Rishi likes to eat peanut.
      ii) Rishi eats whatever John eats.
      iii) John eats only eatables.
      iv) Anybody who eats eatables is a human being.
      v)   Peanut is an eatable.
- Convert these into well-formed formula and casual form.
- Is John a human being? Answer this using back tracking and resolution.

Q5 a)	Differentiate between syntactic and semantic processing with an example.	(5)
b)	What are the different types of learning? Explain with an example.	(5)

Q6 a) What is various knowledge representation techniques used in expert systems? (5)

b) Develop a planning concept for "**going to a movie with**" STRIPS like representation. (5)

Q7 a) Explain forward and backward reasoning with suitable example of each. (5)

b) Give the basic principle of resolution. Explain resolution algorithm in predicate logic. (5)

Q8 Write short notes on (any two) (5 x 2)
a) Probability theory for Uncertainty handling
b) Production System
c) Constraint satisfaction
d) Knowledge acquisition