

**END TERM EXAMINATION**  
**FIFTH SEMESTER[MCA] DECEMBER-2009**

**Paper Code:MCA303**  
**Paper ID-44303**

**Subject: Artificial Intelligence**  
**(Batch: 2004-2007)**

**Time : 3 Hours**

**Maximum Marks :60**

**Note: Q.1 is compulsory. Attempt one question from each unit.**

- Q1 (a) Define AI and give some of the task domains of AI. (2x10=20)  
(b) Define Futility Cut offs.  
(c) How many type of searches are there? Explain.  
(d) Define NLP and its phases.  
(e) Explain Conflict Resolution.  
(f) Describe scripts.  
(g) What do you understand by Pragmatic processing?  
(h) Differentiate between First Order Predicate Logic and Propositional Logic.  
(i) What is Knowledge Acquisition? How it is done?  
(j) Describe learning automation.

**UNIT-I**

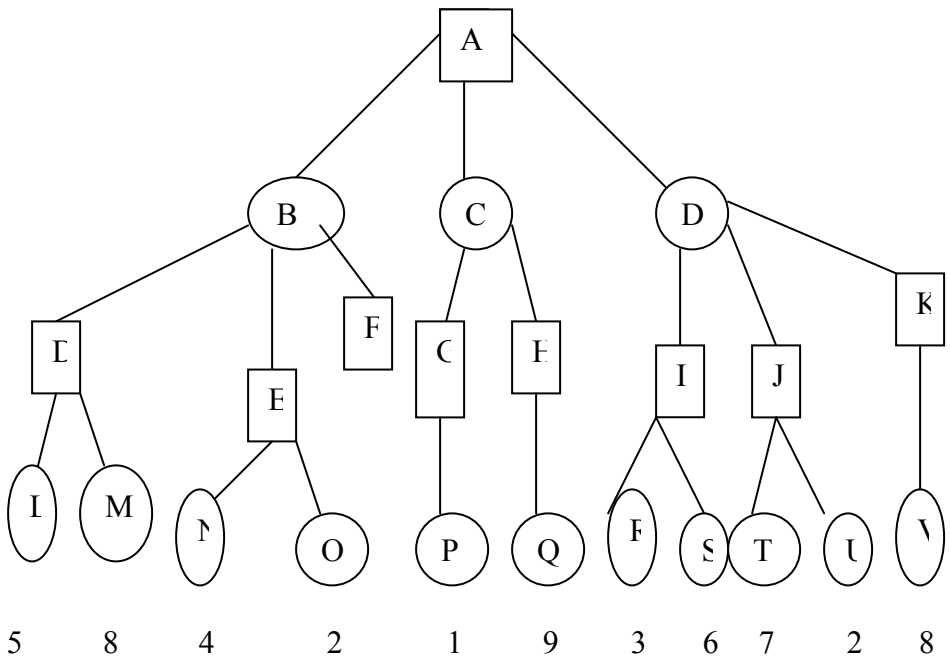
- Q2 (a) Solve the following crypt-arithmetic problem. (5)  
CRACK  
+HACK  
-----  
ERROR  
(b) Give algorithm of A\* . What changes you will do for finding a path involving the fewest no. of steps? (5)
- Q3 (a) Give the production system & find the solution for the following problem.  
There are 3 persons of 40Kg,40Kg and 80Kg. They want to cross a river having A single boat which can carry maximum 80Kg at a time. Find the solution that How can they cross the river if all the three know how to row the boat. (5)  
(b) Explain Branch and Bound algorithm. (5)

**UNIT-II**

- Q4 Consider the following sentences:-
- If pushable objects are red, then nonpushable ones are green.
  - All objects are either red or green but not both.
  - If there is a nonpushable object, then all pushable are red.
  - Object p1 is pushable.
  - Object p2 is nonpushable.

- (a) convert them to First Order Predicate Logic. (3)
- (b) Convert into clauses. (3)
- (c) Use resolution to prove that “there is a green object”. (4)

Q5 (a) Find the value of A using Alpha Beta cut off. (Assume A to be maximizing) (6)



- (b) Give semantic net for (i) Every person has hit the donkey (ii) Ansh gave the red pen to her sister. (2)
- (c) Give conceptual Dependency(CD) representation for (i) Shyam is drinking water in a glass. (ii) Rohit gave Anita a box of sweets. (2)

**UNIT-III**

- Q6 (a) What is Forward Chaining? How it is different from that of Backward Chaining? Give examples. (5)
- (b) What is Learning? Explain its types. (5)

Q7 (a) Semantic processing is important part of natural language processing. Give

- Comments. (5)  
(b) What is Bayesian Network? How and where is it used? (5)

#### UNIT-IV

Q8 What is Expert System? Briefly explain Expert System Development Life Cycle(ESDLC). (10)

Q9 Write short notes on any two of the following:- (5X2=10)  
(a) Genetic Algorithm.  
(b) Fuzzy Logic  
(c) Frame as a tool for Knowledge Representation.

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