

- (b) What is expert system shell ? Why is it preferred to knowledge separate from inference engine. 6

OR

10. (a) What do you mean by Knowledge Acquisition System ? Why it is difficult ? 7
- (b) Differentiate between Conventional Software and Expert System Software. 7
11. (a) What are the sources of uncertainty ? 6
- (b) Explain, how Baye's theorem and probability can be used to handle uncertainty. 7

OR

12. (a) Explain Fuzzy logic and its application. 6
- (b) Explain Dempster-Shafer theory with suitable example. 7

Faculty of Engineering & Technology
Seventh Semester B.E. (Infor. Tech.) (C.B.S.)
Examination
ARTIFICIAL INTELLIGENCE

Time—Three Hours]

[Maximum Marks—80

INSTRUCTIONS TO CANDIDATES

- (1) All questions carry marks as indicated.
- (2) Solve Question No. **1 OR** Question No. **2**.
- (3) Solve Question No. **3 OR** Question No. **4**.
- (4) Solve Question No. **5 OR** Question No. **6**.
- (5) Solve Question No. **7 OR** Question No. **8**.
- (6) Solve Question No. **9 OR** Question No. **10**.
- (7) Solve Question No. **11 OR** Question No. **12**.
- (8) Assume suitable data wherever necessary.
- (9) Illustrate your answers wherever necessary with the help of neat sketches.

1. (a) Analyze the different problem characteristics for the following problem :

(i) Travelling Salesman problem

(ii) 8-puzzle problem. 8

(b) Explain the combinatorial explosion. 5

OR

2. (a) Give the state space representation of the water-jug problem and give one solution to it. 6

(b) What are production systems ? State its different types, and explain each in brief. 7

3. (a) Write and explain AO* Algorithm. 7

(b) Explain the Hill Climbing Technique. 7

OR

4. (a) Explain Means-Ends analysis with the help of suitable example. 6

(b) What is the need of Unification Algorithm ? Explain unification algorithm. 8

5. (a) Construct partitioned semantic nets for the following :

(i) Every batter hits a ball

(ii) All the batters like the pitcher. 8

(b) Explain truth maintenance system. Why is it needed ? 5

OR

6. (a) Represent the following statements in Predicate logic :

(i) The owner of a car also owns the boat

(ii) All people need entertainment.

(iii) Everyone is loyal to someone.

(iv) John likes all kinds of foods. 8

(b) Write resolution principle and explain resolution with suitable example. 5

7. (a) Write a short note on RTN and ATN. 8

(b) Explain chomsky's hierarchy of grammar with example. 5

OR

8. (a) State various types of learning methods, and explain any three with examples. 6

(b) Discuss about various knowledge levels used in natural language understanding. 7

9. (a) Explain Architecture of an Expert System in detail. 8