

7E5101

Roll No. _____

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7E5101**B. Tech. VII Semester (Main) Examination, Nov-Dec-2011****Information Technology
7IT6.2 Intelligent Systems****Time : 3 Hours****Maximum Marks : 80****Min. Passing Marks : 24****Instructions to Candidates:**

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. a) Define Artificial intelligence? State "Water Jug Problem", solve the problem by using operator sequence. Describe the state space of the problem. (8)
- b) What is a production system? Discuss characteristics and control strategies of production system. (8)

OR

1. a) Discuss A* algorithm and advantages of one best first search procedure. (8)
- b) Discuss any two Heuristic search techniques. Explain the algorithm with the help of examples. (4×2)

Unit - II

2. a) Differentiate between knowledge base and database. Explain levels of knowledge representation. (8)
- b) Describe logic programming through prolog. Why matching operation is required in some AI programs. (4+4)

OR

2. a) Use propagation logic to test the validity of the following arguments :
 - i) If I study, I will not fail in maths
 - ii) If I do not play, I will study
 - iii) I failed in maths.

Conclusion : There fore I must have played. (8)

b) Write Technical note on

i) Forward and backward reasoning

ii) Declarative and procedural knowledge. (4+4)

Unit - III

3. a) Write technical note on :

i) Hierarchical planning

ii) Reactive system. (4+4)

b) What is Alpha-Beta planning? Discuss role of the static evaluation function generator and plausible move generator. (8)

OR

3. a) Explain Min - Max search procedure with suitable example. (8)

b) What are the components of a planning system? Describe various types of planning system. (8)

Unit - IV

4. a) Enumerate the Factors which affect the convergence of weight in artificial neural network. (8)

b) Discuss "Winston's learning program". (8)

OR

4. a) Describe explanation based learning and learning by example. (4+4)

b) Describe the biological neuron. Explain the characteristics of neural network. (8)

Unit - V

5. a) Explain the architecture of a general expert system with the help of a block diagram. Why interface engine is attributed as an important part of it. (8)
- b) Explain following terms with reference to Genetic algorithm
- i) Population
 - ii) Reproduction
 - iii) Cross - over
 - iv) Mutation. (2×4)

OR

5. a) What is Fuzzy controller? Discuss basic steps involved in the design of a Fuzzy controller. (10)
- b) Describe in brief
- i) Fuzzy sets.
 - ii) Crisp sets.
 - iii) Linguistic variables. (2×3)
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