

BT-6/M-23
EXPERT SYSTEMS
Paper : PC-CS-AIML-306A

46309

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) Discuss the following by taking some real time examples :
 - (i) Constraint propagation.
 - (ii) Knowledge based deduction system.
 - (iii) Rule based deduction system. 8
- (b) By taking suitable examples, explain the work flow of semantics nets. Also, discuss the problems which are associated with hill climbing. 7
2. (a) Elaborate the main usage and working pattern of Alpha beta pruning and Min-max algorithms. Also, discuss their time-space complexities. 8
- (b) Explain the basic strategies which are used during the implementation of Breadth first search and depth first search techniques. 7

UNIT-II

3. (a) A washing machine has a fault. The washing machine mechanic uses an expert system to try to find the solution to the fault.
- (i) What type of expert system it would be?
 - (ii) Describe *three* features that should be included in the expert system to make it easy for the washing machine mechanic to use. 8
- (b) What is the role of acquisition module frames? Identify their patterns and usage criterion. Also, discuss the role of diagnosis and debugging in expert systems. 7
4. (a) Discuss the following by taking some real time examples :
- (i) Backward chaining.
 - (ii) Interpretation and prediction and their associated rules. 8
- (b) Identify the basic aspects of expert systems. How to represent and organize the knowledge base in expert systems? EXAMKIT 7

UNIT-III

5. (a) Explain in detail about knowledge acquisition and meta-knowledge in expert systems.
- (b) How to build different process in the expert systems? Identify the basic technical advantages of using process workflow and knowledge engineering.

6. (a) What is expert system shell? Write a note on tools which are used to develop the expert systems. 8
(b) Discuss the various techniques which may be used for knowledge representation in the expert systems. 7

UNIT-IV

7. (a) Identify the most common pitfalls which are generally triggered during the panning of the expert systems. 8
(b) Define and discuss the basic nomenclature of domain expert. How can you deal with domain expert? What are the key responsibilities of a domain expert? 7
8. (a) Is prospector an example of expert system? Explain various facts and figures associated with the case study of prospector. 8
(b) Recognize the different difficulties which may be encountered during the development of expert systems. 7

EXAMKIT