



Seat No. : \_\_\_\_\_

**XX-129**

**April-2013**

**Five Years M.Sc (CA & IT) Integrated (K.S.)**

**IV M.Sc.**

**406 : ARTIFICIAL INTELLIGENCE & EXPERT SYSTEM**

**Time : 3 Hours]**

**[Max. Marks : 100**

1. Answer the following : (any **two**) **10 × 2 = 20**
  - (a) Explain the components of the production system.
  - (b) What are the problems a hill climbing can encounter ? Discuss the ways to deal with it.
  - (c) Discuss how expert system differs from the conventional system ? Discuss the component of ES.
  
2. Answer the following : (any **two**) **10 × 2 = 20**
  - (a) Write a short note on procedural and declarative knowledge. Differentiate the two with an example.
  - (b) What are the properties that a good knowledge representation technique should possess ? Explain them briefly.
  - (c) Write advantages and disadvantages of DFS and BFS search techniques.
  
3. Answer the following : (any **two**) **10 × 2 = 20**
  - (a) What are the different stages required in Natural Language Processing ? Explain each in detail.
  - (b) Explain how a loop can be constructed in PROLOG ? Use the construct to display integers from 1 to N (accept as an input from the user). When a number is divisible by 5 display 'div 5'.
  - (c) Define the problem space, initial and goal states of 8 – Queens problem. Which heuristic guide in finding solution to the problem.

4. Answer the following : (any **two**) **10 × 2 = 20**
- (a) Explain XOR problem with perceptron. How is it solved using multilayer perceptron ?
  - (b) What are slots ? Slots can be represented as frames and relation. Give example to support the statement.
  - (c) Explain the concept of Alpha Beta pruning. How does this procedure works ?
5. Attempt the following : (any **four**) **5 × 4 = 20**
- (a) Forward Vs. Backward reasoning.
  - (b) Knowledge Engineering.
  - (c) Non-monotonic reasoning.
  - (d) Back Propagation Network.
  - (e) Frame.
  - (f) Hopfield Network
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