

**Artificial Intelligence**

P. Pages : 2

Time : Three Hours



**TKN/KS/16/7493**

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Due credit will be given to neatness and adequate dimensions.
  9. Assume suitable data whenever necessary.
  10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Define AI. Explain typical Task Domains of AI. 7  
b) What is production system? Explain its characteristics. 6  

**OR**
2. a) Explain different problem characteristics with example. 8  
b) What is state space? Explain with example. 5
3. a) Differentiate between Breadth first and Depth first search. 6  
b) State the difference between simple hill climbing and steepest ascent hill climbing. 7  

**OR**
4. a) Explain when would best first search be worse than simple breadth first search. 6  
b) What is Heuristic search? Explain in detail. 7
5. a) Write short note on predicate and propositional logic. 6  
b) What is knowledge? Explain the types of knowledge. 8  

**OR**
6. a) Explain with the help of block diagram, different components of a knowledge – based system. 8  
b) Write short note on : **any three.** 6  

1) Backward chaining.	2) Semantic nets.
3) Frames.	4) Scripts.
7. a) How to resolve the issue of uncertain knowledge? 7  
b) What is rational decisions? For what purpose it is used? 6  

**OR**
8. a) Explain Baye's Rule. 6

- b) Write short note on: 7  
1) Axioms of probability.  
2) Bayesian Networks.  
3) Fuzzy Logic.
9. a) What is learning? Draw and explain the block diagram of general learning model. 9  
b) What are factors affecting learning performance? State its performance measures. 5
- OR**
10. a) Explain learning by discovery. 6  
b) What are the different types of learning? Explain each one with example. 8
11. a) What do you mean by expert system shell? State its advantages. 7  
b) Why it is important that an expert system to be able to explain "why and how question related to problem solving session?" 6
- OR**
12. a) Give applications of expert system. 5  
b) Write short note on **any four**.  
1) Knowledge Based System. 2  
2) Automated Reasoning. 2  
3) Natural Language Processing. 2  
4) Knowledge Engineering. 2  
5) Knowledge Acquisition 2

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