

# POKHARA UNIVERSITY

Level: Bachelor Semester: Spring Year : 2018  
 Programme: BE Full Marks: 100  
 Course: Artificial Intelligence and Neural Network Pass Marks: 45  
 Time : 3hrs.

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

**Attempt all the questions.**

1. a) What are the challenges for human to make a computer system like human? Explain with few examples. 8  
 b) What do you mean by a production system in AI? What are the major components of AI production system? 7
2. a) Define intelligent agent. What are the different types of agent? Describe each agent with their specific properties. 7  
 b) What are the advantages of representing knowledge using Predicate logic over Propositional logic? Explain with examples. 8
3. a) Let us consider the following facts: 8
  - i. Anyone whom Mary loves is a football star.
  - ii. Any student who does not pass does not play.
  - iii. John is a student.
  - iv. Any student who does not study does not pass.
  - v. Anyone who does not play is not a football star.

Use the resolution to to prove: If John does not study, then Mary does not love John.
- b) With example explain the mini-max procedure. Why is the mini-max procedure inefficient? How can it be made efficient? Explain. 7
4. a) Why do we need to reason on uncertainty? What is a Bayesian network? Explain with an example. 7  
 b) What is machine learning? Explain learning by analogy with examples. 8
5. a) What do you mean by Supervised and Unsupervised Learning? Explain probabilistic reasoning process using Bayesian Networks. 8

- b) Define Artificial Neural Network. Describe the Hopfield network in detail. 7
6. a) Describe the basic components of an expert system. 8  
 b) What are the difficulties in NLP? Construct a parse tree for the sentence "Sandeep is playing cricket". 7
7. Write short notes on (Any Two): 2×5
  - a) Linear programming
  - b) Genetic Algorithm
  - c) Knowledge Elicitation