

# POKHARA UNIVERSITY

Level: Bachelor

Semester: Spring

Year : 2017

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 aspects of a formal definition of a problem? Explain with example. 7
- b) What is the role of planning in problem solving? Differentiate between forward and backward chaining. 8
2. a) Define Artificial Intelligence. What capabilities must a machine possess to be called it as intelligent? Explain. 7
- b) What are the advantages of predicate logic over propositional logic? 8  
Let us consider there are two shops A and B. A has a signboard saying "cheap clothes are not good and B has a signboard saying "good clothes are not cheap". Are both shops saying same thing?
3. a) Convert the following sentences into FOPL. 8
  - i. Marcus was a man.
  - ii. Marcus was a Pompeian.
  - iii. All Pompeian were Romans.
  - iv. Caesar was a ruler.
  - v. All Romans were either loyal to Caesar or hated him.
  - vi. Everyone is loyal to someone.
  - vii. People only try to assassinate rulers they are not loyal to.
  - viii. Marcus tried to assassinate Caesar.
- b) How does alpha-beta pruning solve the problem of mini-max procedure? Explain. 7
4. a) Why do we need to reason on uncertainty? What is a Bayesian network? Explain with an example. 7
- b) Define concept learning. Discuss about the Winston learning with example. 8

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5. a) With example, explain about explanation based learning (EBL) system. 7
- b) Define Artificial Neural Network. Describe the Hopfield Network in detail. 8
6. a) Describe expert system with an example. 7
- b) Discuss possible ambiguities that may occur during natural language processing. 8
7. Write short notes on: (Any two) 2×5
  - a) Frame
  - b) Genetic Algorithm
  - c) Knowledge Acquisition