

# POKHARA UNIVERSITY

Level: Bachelor

Semester: Fall

Year : 2020

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 do you mean by Artificial Intelligence? Describe AI Winter. Why and how did AI boom in 21<sup>st</sup> century? 8
- b) Differentiate between Linear and non-linear planning. Explain production rule system with a example 7
2. a) What do you mean by knowledge representation in AI? Why it is important? Explain frames and semantic networks as methods of knowledge representation with examples. 7
- b) What do you mean by Skolemization? Explain the CNF Conversion steps in Predicate Logic. Also convert "Anything anyone eats and is not killed by is Food" to FOL and equivalent CNF 8
3. a) Briefly distinguish between Antecedent mode and Consequent mode. What do you understand by Constraint Satisfaction? Mention its steps and an example. 7
- b) What is Heuristic Search Technique? Compare and Contrast Greedy Search and A\* Search with an appropriate example. 8
4. a) What is Supervised and Unsupervised Learning? Explain why Confusion Matrix is a significant factor for training datasets. 7
- b) What do you mean by Genetic Algorithm? Explain it with a flow chart and associated operations. 8
5. a) Why knowledge elicitation is important from an expert? What are various types of knowledge elicitation techniques used for Artificial Intelligence? 8
- b) What is Neural Network? Explain the concept of Back-Propagation Neural Network for training Datasets. 7

6. a) What do you mean by Expert system? Explain the architecture of an expert system with its block diagram. 7
- b) Describe Natural Language Processing. Write about different levels of Analysis in NLP. 8
7. Write short notes on: (Any two) 2×5
- a) State Space tree
- b) Min-max algorithm
- c) Procedural and declarative knowledge