Tribhuvan University
**Institute of Science and Technology**
2081
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Bachelor Level / Second Year/ Forth Semester/ Science          Full Marks: 60
**Computer Science and Information Technology (CSC 261)**          Pass Marks: 24
(Artificial Intelligence)          Time: 3 hours.
**(OLD COURSE)**
*Candidates are required to give their answers in their own words as for as practicable.*
All figures in the margin indicate full marks.

### Section A

**Long Answer Questions.**
Attempt any TWO questions.          **[2 × 10 = 20]**

1. Explain the principles of adversarial search techniques, including the mini-max search algorithm. How do these techniques optimize the search space and improve the decision-making process in two player games? Provide an example to illustrate these techniques.          [5+5]

2. Why is knowledge representation important in AI system? Explain semantic net and script knowledge representation technique with appropriate example.          [3+7]

3. Distinguish between supervised and unsupervised learning with example. Explain the key components of genetic algorithm.          [5+5]

### Section-B

**Short Answer Questions**
Attempt any EIGHT questions.          **[8 × 5 = 40]**

4. Explain the application of AI with examples.          [5]

5. Explain the concept of an intelligent agent and its components.          [5]

6. Describe about depth limited search with its limitations.          [5]

7. Describe the working process of backward and forward chaining with example.          [5]

8. Explain about predicate logic and quantifiers with example          [5]

9. Explain the working mechanism of backpropagation algorithm.          [5]

10. Explain expert system with block diagram.          [5]

11. Describe the different ambiguities in natural language processing.          [5]

12. What is machine vision. What are the primary components involved in a machine vision system.          [1+4]