**Kathmandu BernHardt College**

**Bafal, Kathmandu**

**Pre-Board Examination -2070**

**Faculty: Science Set ‘A’ FM: 60**

**Subject: Cognitive Science.**(CSC 255) **PM: 24**

**Level: BSc CSIT IV SEM Time: 3 hrs**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

**Group-A**

**Attempt all questions**: (6\*10=60)

1. Describe the mathematical model of artificial neuron given by McCulloch & Pitts. Realize the NOT gate using such neuron.
2. What do you mean by artificial intelligence? Describe acting humanly approach of AI in detail.
3. What are different approaches to knowledge representation? Explain Rule-Based approach in detail.

OR

Describe Marr’s three levels of information processing.

1. Describe A\* search in detail.
2. Explain in brief the various stages of Expert System Development.

OR

What do you mean by supervised learning and unsupervised learning? Briefly explain the concept of Hebbian learning.

1. What do you mean by conjunctive normal form (CNF)? Convert following sentence into CNF: (B∨D) → (A ∨ C)
2. Write short notes on:
   * 1. Rational Agent
     2. Breadth-First search
3. Explain briefly the Chomskey hierarchy of Grammars.
4. Describe Descarte’s Mind-Body problem. What was Turing’s response to it?

OR

Describe Descarte’s Mind-Body problem. What was Pinker’s response to it?

1. Describe the structure of Human Information Processing System in brief. (Block diagram required).

OR

What is natural language processing? What are the levels of knowledge used in language understanding?

**The End.**

**Kathmandu BernHardt College**

**Bafal, Kathmandu**

**Pre-Board Examination -2070**

**Faculty: Science Set ‘B’ FM: 60**

**Subject: Cognitive Science.**(CSC 255) **PM: 24**

**Level: BSc CSIT IV SEM Time: 3 hrs**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

**Group-A**

**Attempt all questions**: (6\*10=60)

1. Define artificial intelligence? Describe thinking humanly approach of AI in detail.
2. What do you mean by knowledge? Explain Object-Based approach of knowledge representation.

OR

What do you mean by supervised learning and unsupervised learning? Briefly explain the concept of Hebbian learning.

1. Describe A\* search in detail.
2. Explain in brief the various stages of Expert System Development.

OR

Describe Marr’s three levels of information processing.

1. What do you mean by conjunctive normal form (CNF) ? Convert following sentence into CNF: (B→A) → (¬C ∨D )
2. Describe the mathematical model of artificial neuron given by McCulloch & Pitts. Realize the AND gate using such neuron.
3. Write short notes on:
   * 1. Chomskey hierarchy of grammars
     2. Depth-First search
4. Describe Descarte’s Mind-Body problem. What was Searle’s response to it?

OR

Describe Descarte’s Mind-Body problem. What was Penrose’s response to it?

1. Describe the structure of Human Information Processing System in brief. (Block diagram required).

OR

What is natural language processing? Describe the various parameters in natural language processing.

1. What is a Turing Machine? Give a formal definition of Turing machine.

**The End.**