

Tribhuvan University
Institute of Science and Technology

2066

Bachelor Level/ Second Year/ Forth Semester/ Science

Full Marks: 60

Computer Science and Information Technology (CSc.255)

Pass Marks: 24

(Introduction to Cognitive Science)

Time: 3 hours

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. (10×6=60)

1. Why cognitive science is important in the computer science? Compare it with philosophy and explain it with suitable examples.
2. Define and explain artificial intelligence. Act rationally is an important part of artificial intelligence, justify it with suitable example.
3. The object based system can represent knowledge, explain it with practical examples.
4. Explain the algorithm of breadth first search with suitable example. How can you modify it, explain.

OR

What do you mean by A* search? Explain it with an algorithm and suitable example.

5. Why Turing machine is required? Design a Turing machine with finite west of states as q0, q1 and q2, alphabets are “a” and “b”, initial state is q0 and assume 5 suitable examples.
6. List down the all Chomsky hierarchies. Explain in detail about type 0 with practical examples.
7. Explain the mathematical model of neural network system with suitable example. Also explain the importance of neural networks.
8. Explain the perceptron with suitable practical example and algorithm.
9. Explain penrose approach in the cognitive science. What is its relation with Descartes, explain with suitable example.
10. Why lexicon and morphology are required in natural language processing, explain suitable example?

OR

What are the parameters of language processing? Explain in detail about syntax with suitable example.