Tribhuvan University

Institute of Science and Technology

2067

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.

1. Compare cognitive science with sociology and explain it with examples. Differentiate between linguistics of artificial intelligence?

2. Differentiate between think humanly and act humanly with suitable examples. What are the applications of artificial intelligence?

3. What do you mean by first order predicate logic? Explain it with practical example.

4. Differentiate between depth first search and breadth first search with example.

    OR

    Differentiate between hill-climbing search and A* search with example.

5. Design a Turing machine with finite set of states as q0 and q1, alphabets are 'a', 'b', and 'c', initial state is q0 and assumes 5 suitable transitions. What are the practical applications of Turing machine?

6. Differentiate between types I and type II Chomsky hierarchies with examples. Explain the role of Chomsky hierarchy in the computation?

7. Explain the biological neuron. Explain the mathematical model of neural network system with suitable example.

8. Explain the back propagation practical example and algorithm.

9. Explain Searle approach in the cognitive science. What is its relation with Descartes, explain with example.

10. How can you generate parse tree in the natural language processing? Explain it with example.

    OR

    Differentiate between syntax and semantics in the natural language processing. How can you modify it with pragmatic approach?