

Tribhuvan University
Institute of Science and Technology
2070

Bachelor Level/ Third Year/ Fifth Semester/ Science
Computer Science and Information Technology (CSc. 304)
(Artificial Intelligence)

Full Marks: 60
Pass Marks: 24
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. (10x6=60)

1. What is 'Turing Test' in Artificial Intelligence (AI)? Criticize the performance of the 'Turing Test' to measure the intelligence of the machine.
2. Explain the uninformed search techniques with example.
3. If we set the heuristic function $h(n)=g(n)$ for both greedy as well A*. What will be effect in the algorithms? Explain.
4. The minimax algorithm returns the best move for MAX under the assumption that MIN play optimally. What happens when MIN plays suboptimally?
5. Translate the following sentence into first order logic:
 - i. "Everyone's DNA is unique and is derived from their parents' DNA".
 - ii. "No dog bites a child of its owner".
 - iii. "Every gardener likes the sun".
 - iv. "All purple mushrooms are poisonous".
6. Represent the following sentences into a semantic network.

Birds are animals.

Birds have feathers, fly and lay eggs.

Albatross is a bird.

Donald is a bird.

Tracy is an albatross.

7. What is an expert system? Explain the architecture and feature of rule-based expert system.

8. What are conceptual graphs? Represent the following statements into conceptual graph.

“King Ram marry Sita, the daughter of king Janak”.

9. What is machine learning? Explain the learning from analogy and instance based learning?

10. What is Bayesian Network? Explain how Bayesian Network represents and inference the uncertain knowledge.