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1 (SEM-6/FYUGP) CIT04

2026

**COMPUTER APPLICATION/
INFORMATION TECHNOLOGY**

Paper : CIT0600404

(Artificial Intelligence)

Full Marks : 45

Time : 2 hours

*The figures in the margin indicate
full marks for the questions.*

1. Answer the following questions :
(All Compulsory) $1 \times 5 = 5$

- (a) What is Artificial Intelligence ?
- (b) Who proposed the Turing Test ?
- (c) What is an intelligent agent ?
- (d) Define rational agent.
- (e) What is parsing ?

2. Answer **any five** of the following questions :
 $2 \times 5 = 10$

- (a) What are the limitations of hill climbing ?
- (b) What is game playing in AI ?
- (c) Define predicate logic with example.
- (d) What is the primary role of a TMS during Non-Monotonic reasoning ?
- (e) Explain the difference between Prior and Posterior probability.
- (f) Compare RTN and ATN.
- (g) What is Unification ?
- (h) Define Context-Free grammar.
- (i) What is conceptual graph ?
- (j) Explain production rules.

3. Answer **any four** of the following questions:
 $5 \times 4 = 20$

- (a) Discuss Turing Test and Rational Agent approaches to AI.
- (b) Explain intelligent agents, their structure, behavior, and environment.
- (c) Discuss problem characteristics in AI problem solving.
- (d) Explain hill climbing and its variations.
- (e) Discuss heuristic search techniques.
- (f) Explain A* search algorithm with example.
- (g) Explain Min-Max algorithm with example.
- (h) Explain Alpha-Beta pruning with example.

4. Answer **any one** of the following questions:
 $10 \times 1 = 10$

- (a) Explain advantages, disadvantages and applications of Artificial Intelligence.
- (b) Compare Breadth First Search and Depth First Search Algorithm. Discuss their advantages and disadvantages.

- (c) Define FOPL. Translate the following English sentences to FOPL:
- (i) Every person who codes in Python is smart.
 - (ii) Some students do not like exams.
 - (iii) Manjit teaches every student who likes AI.
- (d) Write short notes on Constraint Satisfaction Problem (CSP) and Conjunctive Normal Form (CNF).
- (e) Define following terms — Semantic Nets, Frames and Scripts, Conceptual Dependencies (CD), Conceptual Graphs (CG) and Production Rules.
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