

Roll No.

67102-N

**MCA 3rd Semester (MCA 2 Year
Programme) w.e.f. 2021-2022
Examination – December, 2024**

**ARTIFICIAL INTELLIGENCE & COMPUTATIONAL
INTELLIGENCE**

Paper : 21MCA23C2

Time : Three hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Compulsory Questions :

- (a) How problem can be defined as state space ?
- (b) How candidate analysis is done in expert system ?
- (c) What is skolemization ?
- (d) How reasoning is done with semantic network ?
- (e) What is content addressable memory ?

- (f) Why GA is used rather than traditional search methods ?
- (g) Define hedge with example.
- (h) How learning can be applied in pattern recognition ?

UNIT - I

- 2. What is heuristic function ? Discuss how heuristic function helps during search procedure ? On the basis of heuristic function, how best first and A* algorithms are different from each other. Explain with example.
- 3. What is prototype ? Discuss the purpose of prototyping ? How a prototype is constructed in expert system ? List out the steps of prototype construction in detail.

UNIT - II

- 4. (a) What is knowledge engineering ? Explain the activities and views related to knowledge engineering ? Also discuss the role of knowledge acquisition in KE.
- (b) What is conflict resolution ? Discuss various strategies for conflict resolution.

5. (a) What is truth Maintenance System ? Compare justification based, assumption based and logic based truth maintenance system with each other.
- (b) What is probabilistic reasoning ? How probability can be determined with uncertain knowledge ? Discuss.

UNIT – III

6. (a) Discuss the working principle and architecture of McCulloch-Pitts neural network with diagrammatic notation and appropriate example.
- (b) What is selection in Genetic algorithm ? Describe various selection methods used in GA.
7. (a) What is perceptron ? Discuss the operational characteristics, elements and training algorithm for single output unit of perceptron.
- (b) What is optimization ? How optimized result can be achieved on the basis of Ant Colony optimization method ?

UNIT – IV

8. (a) What is fuzzy logic ? Explain component architecture of fuzzy logic with diagrammatic representation ?
- (b) What is fuzzy inference system ? Discuss the construction, working and methods of FIS.

9. (a) Discuss the architecture, components and steps of design of Fuzzy control system.

(b) What is Information retrieval ? How computational intelligence is used in IR ?
