

7. (a) What is Adaline ? Draw the model of Adaline network. Explain the training algorithm used in Adaline network.
- (b) What is Optimization ? How optimized result can be achieved on the basis of Particle Swarm optimization method ?

Unit-IV 16 each

8. (a) What is Membership Function ? Discuss the properties and methods of determining the membership function.
- (b) What is Fuzzy Inference System ? How neuro-fuzzy modeling is specified with FIS ? Illustrate with example.
9. (a) Discuss the architecture, components and steps of design of Fuzzy Control System.
- (b) What is NLP ? How text can be analyzed in NLP ? Explain.

Roll No. : .....

Total No. of Questions : 9 ] [ Total No. of Pages : 4

**67102-N**

MCA 3rd Semester (Regular) Examination,  
February-2022  
(MCA 2 Years Programme)  
(w.e.f. 2020-21)  
Paper-21MCA23C2

**ARTIFICIAL INTELLIGENCE AND  
COMPUTATIONAL INTELLIGENCE**

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. Q. No. 1 is compulsory. All questions carry equal marks.

**Compulsory Question**

1. (a) What is Production System ? Discuss the components of it.

- (b) How knowledge can be generated with knowledge generation component of expert system ?
- (c) Write down the steps to get a clausal form.
- (d) Discuss the role of certainty factor in knowledge representation.
- (e) What is the impact of weight in an ANN?
- (f) How GA is different from traditional search methods ?
- (g) Define the height of a fuzzy set.
- (h) How learning can be applied in Information Retrieval Systems ?
- Unit-I
- 2×8=16  
16 each

2. What is Heuristic Search ? Discuss the properties of heuristic search algorithms. How A\* algorithm is different from AO\* algorithm ? Discuss the use of heuristic function in both of them.

67102-N

( 2 )

RR-494

3. What is an Expert System ? How an expert system is implemented ? List out the steps of implementation in detail.
- Unit-II
- 16 each

4. (a) What is Resolution ? Why resolution is considered as an inference rule ? Discuss its different types with example.
- (b) What is Script ? Discuss the components of script with an example. How reasoning can be done with script ?
5. (a) What is Truth Maintenance System ? Discuss its different types.
- (b) How Bayesian theorem is used to handle the uncertainty of knowledge ? Explain.
- Unit-III
- 16 each

6. (a) What is ANN ? Discuss the architectural specification of ANN on the basis of connections with diagrammatic notation.
- (b) How Genetic algorithm is used in problem solving ? Give an example.

67102-N

( 3 )

RR-494 P.T.O