

Roll No. ....

**67199**

**MCA 4th Semester CBCS Scheme**

**w.e.f. 2017-18**

**Examination – May, 2019**

**ARTIFICIAL INTELLIGENCE & EXPERT SYSTEM**

**Paper : 17MCA34C3**

**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 question :**

- (a) What is production system ? Name its components also.
- (b) What is admissibility of an algorithm ?
- (c) What is Unification ? Give example.
- (d) Define Partitioned semantic net. Give example also.
- (e) Discuss the role of certainty factor in knowledge representation ?

- (f) **Differentiate** supervised and unsupervised learning.
- (g) Name the functions used to add the data in knowledge base in Prolog with example.
- (h) **Discuss** the structure of Prolog program.

**UNIT – I**

- 2. **Differentiate** blind search and heuristic search. When does **blind search** become better than **heuristic search** ? Also discuss the properties of heuristic search algorithms.
- 3. Why is it important that an expert system be able to explain the why and how question related to problem solving ? Discuss the role of inference engine in expert system to solve the problem.

**UNIT – II**

- 4. How ESDLC is related with software engineering ? Why prototype construction and formalization are important phases in ESDLC. Explain.
- 5. What is Truth Maintenance System ? Explain its different types and how TMS is used to deal the uncertainty of knowledge.

**UNIT – III**

- 6. What are the differences between biological and artificial neurons ? What is the role of back propagation network in ANN ? **Discuss** with an example.

7. (a) What is fuzzy set ? What is the membership function of a fuzzy set ? Can a fuzzy membership be TRUE and FALSE at the same time ? Illustrate with example.
- (b) Discuss the inference process for fuzzy expert system.

#### UNIT – IV

8. What is matching ? Discuss the role of Backtracking in matching. How fail and cut predicates are used in backtracking ? Give example also.
9. Explain with examples :
- (a) Compound object
  - (b) Recursion
  - (c) Dynamic database
  - (d) Types and components of list

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