

**SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2021  
COMPUTER SCIENCE  
FCSS2C09-COMPUTATIONAL INTELLIGENCE**

**Time: 3 Hours**

**Maximum Weightage: 30**

**Section A: Short answer questions. All questions can be answered. Each carries *two* weightage (Ceiling 6 weightage).**

1. Explain the differences between explanation based learning and society based learning.
2. What is artificial intelligence? Discuss its characteristics, scope and applications.
3. Briefly explain the various types of learning in problem solving.
4. What are fuzzy sets? Describe the operations on fuzzy sets.
5. Describe the significance of computable functions and predicates with example.
6. Write a note on implementing alpha-beta cutoffs while searching.
7. Discuss predicate calculus and inference rules.

**Section B: Short essay questions. All questions can be answered. Each carries *four* weightage (Ceiling 12 weightage).**

8. Write AO\* algorithm. Use with suitable example, how AO\* algorithm is used for problem reduction?
9. Explain the resolution algorithm used for reasoning under propositional and predicate logic with suitable example.
10. Describe space production system and its characteristics.
11. Explain the life cycle of an expert system. Also give a note on its application areas.
12. Give a detailed account of classifier systems and genetic programming.
13. Explain planning system and its components.
14. Discuss constraint satisfaction problem with an algorithm for solving a crypt-arithmetic problem.

**(PTO)**

**Section C: Essay questions. All questions can be answered. Each carries six weightage (Ceiling 12 weightage).**

15. With appropriate examples explain the working of BFS and DFS in detail. Also write advantages and disadvantages.
16. Describe back propagation network in detail.
17. Elaborate on:
  - a) Non-monotonic reasoning
  - b) Logic programming.
18. Explain how slot and filler structures are used for knowledge representation.