# [35102]
# M.C.A DEGREE EXAMINATIONS
## THIRD SEMESTER
## Paper - II : ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS
*(2016-17, 2017-18, 2018-19 and 2019-20 Admitted batches)*

**Time : 3 Hours** **Maximum : 75 Marks**

### SECTION - A

**Answer ALL questions.** **(4×15=60)**

**1.** a) What is Greedy Best First Search? Explain with an example the different stages of Greedy Best First search.

**(OR)**

b) Explain about goal based agents and utility based agents with neat diagrams.

**2.** a) Illustrate constraint satisfaction Problem with suitable example.

b) Explain about simulated annealing.

**(OR)**

c) State and explain Unification algorithm.

d) Consider the following axioms

i) A

ii) $(A \wedge B) \rightarrow C$

iii) $(D \vee E) \rightarrow B$

iv) E

Convert them into clause form and derive 'C' using resolution.

**3.** a) What do you understand the utility theory? Explain about single attribute and multi attribute utility functions.

**(OR)**

b) What is meant by fuzzy membership functions? Draw the different membership functions? Two fuzzy sets defined by A={(x1, 0.2) (x2, 0.5) (x3, 0.6)} and B ={(xl,0.l) (x2, 0.4) (x3, 0.5)} Find

i) Power of a fuzzy sets

ii) Difference

iii) Disjunctive sum.

**4.** a) With neat architecture, explain various elements of an expert systems? Describe different application domains of expert systems.

**(OR)**

b) Illustrate learning decision trees with example.

c) State and explain multilayer feed forward neural network with neat sketch.

## SECTION - B

**Answer any FIVE questions.** **(5×3=15)**

**5.** a) What are the capabilities should the computer possess to pass the Turing Test?

b) Describe the structure of agent.

c) Define the terms Uniform-cost search and Depth limited search.

d) What is the heuristic function of A* search algorithm?

e) Give the syntax of First order logic.

f) State the Bayesian rule.

g) What is meant by inductive learning?

h) What is semantic net? Give an example.

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