

MCA (Revised)

Term-End Examination

December, 2012

MCSE-003 : ARTIFICIAL INTELLIGENCE AND
KNOWLEDGE MANAGEMENT

Time : 3 hours

Maximum Marks : 100

Note : Question number 1 is compulsory. Attempt any three
from remaining four questions.

1. Answer any five of the following questions
briefly : 5x8=40
- (a) What are the general characteristics of AI techniques ?
 - (b) What are the limitations of First Order Logic for knowledge representation ?
 - (c) What is the difference between declarative and procedural knowledge ? Give example.
 - (d) Explain the advantages of Skolem form with example.
 - (e) What is non-monotonic reasoning ? Explain with the help of example.
 - (f) What do you mean by resolution by refutation ? Give example.
 - (g) Differentiate between forward and backward reasoning.
 - (h) What is Knowledge Acquisition ? Explain with example.

2. (a) Represent the following facts in predicate logic (WFF) : 10
- (i) Bhaskar was a physician.
 - (ii) All physicians were Indian.
 - (iii) Ashoka was a ruler.
 - (iv) All Indians were either loyal to Ashoka or hated him.
 - (v) Every one is loyal to some one.
- (b) What do you mean by Resolution by Refutation ? Based on the above facts, use resolution to answer "**Whether Bhaskar was loyal to Ashoka**". 10
3. Discuss the following search techniques : 4x5=20
- (a) Depth First Search
 - (b) Breadth First Search
 - (c) A* Algorithm
 - (d) AO* Algorithm
4. (a) Write a LISP function to evaluate factorial using recursion. 10
- (b) What is Property List in LISP? How it is implemented? Explain with suitable examples. 5
- (c) What is the importance of CUT predicate in PROLOG? Explain with suitable example. 5
5. (a) What is an Expert System ? What are its advantages and limitations ? Briefly discuss the architecture of an Expert System. 15
- (b) What are Expert System Shells ? Briefly explain. 5
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