FACULTY OF INFORMATICS

B.E. 3/4 (IT) II Semester (Main) Examination, May/June 2011

ARTIFICIAL INTELLIGENCE

Time : 3 Hours]　　　　　　　　　　　　　　　　　[Max. Marks : 75

Note : Answer **all** questions from Part – **A**. Answer any **five** questions from Part – **B**.

PART – A　　　　　　　　　　(Marks : 25)

1.　Define Agent and state its functions.　　　　　　　　　　　　2

2.　Why is A* admissible ?　　　　　　　　　　　　　　　　3

3.　Define α-cutoff & β-cutoff.　　　　　　　　　　　　　　3

4.　What are horn clauses ?　　　　　　　　　　　　　　　2

5.　What are the advantages of DFS ?　　　　　　　　　　　　2

6.　State Bayes theorem.　　　　　　　　　　　　　　　　2

7.　What is qualification problem and ramification problem ?　　　　　3

8.　Define neural networks.　　　　　　　　　　　　　　　2

9.　Briefly explain entropy and information gain.　　　　　　　　　3

10.　Write a short note on Frames.　　　　　　　　　　　　　3
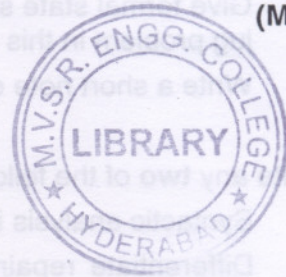
PART – B　　　　　　　　　　(Marks : 50)

11.　Write and explain the best first search strategy and explain how this combines the advantages of both DFS & BFS approaches.　　　10

12.　(a)　Explain resolution refutation algorithm in propositional logic.　　5

　　(b)　Obtain the resolution proof for the proposition "Angle B is equal to Angle C" from the following axioms :　　　　　　　　　5

　　　　(i)　If a triangle is equilateral then it is isosceles.

　　　　(ii)　If a triangle is isosceles then two sides AB & AC are equal.

　　　　(iii)　If AB & AC are equal then angle B and angle C are equal.

　　　　(iv)　ABC is an equilateral triangle.

13. Write the back propagation algorithm and explain in detail with a neat diagram. **10**

14. Explain Viterbi algorithm in detail with a good example. **10**

15. (a) Explain briefly about planning system. **5**

(b) Write a short note on reasoning uncertain information. **5**

16. (a) Give formal state space description of AI problem and solve the water jug problem in this content. **5**

(b) Write a short note on rule based expert systems. **5**

17. Write any **two** of the following : **10**

(i) Syntactic analysis in NLP with example.

(ii) Differentiate repair approach and constructive method in CSP with example.

(iii) Version space learning algorithm.