D 22598   (Pages : 2)   Name..

                                                    Reg. No...............................

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, JANUARY 2012

Computer Science

CSC 3C 04—ARTIFICIAL INTELLIGENCE

(2010 admissions)

Time : Three Hours   Maximum Weightage : 36

Part A

Answer **all** *questions.*
Each question carries 1 weightage.

1. List any *four* characteristics of AI problems.

2. Explain the term Heuristic search.

3. Explain the basic principle of Hill climbing algorithm.

4. Write Well Formed formulae for :

    (a) Lovely was a women.   (b) Lovely was a Malayalee.

    (c) **All** Malayalees are lazy.   (d) Lovely hates Pricily.

5. Compare procedural and declarative knowledge.

6. Explain the basic principle of backward chaining rule system.

7. With suitable example, explain how rules and facts are represented in **PROLOG**.

8. How do we represent list in **PROLOG** ? Give examples, explain any *one* operation on list.

9. What is script ?

10. With the help of a block diagram, explain semantic network.

11. Define Expert System Shell.

12. List examples of Expert systems.

                                              (12 x 1 = 12 weightage)

Part B

Answer any **six** *questions.*
Each question carries **2** *weightage.*

13. Compare Breadth First Search and Best First Search.

14. List and explain important applications of AI.

15. Write note on control knowledge.

16. Assume the following facts :—

    (a)   Steve only likes easy courses.

    (b)   Science courses are hard.

    (c)   All the courses in the weaving department are easy.

    (d)   WS3C01 is a weaving course.

   Use resolution to answer the question. "What courses would Steve Like" ?

17. Write the general syntax of **PROLOG**. Write **PROLOG** rules to define the relations :
      Sibling, Uncle and Cousin.

18. Write notes on default reasoning.

19. Explain augmented transition network.

20. Write notes on knowledge acquisition.

21. Write notes on representation and using domain knowledge in Expert Systems.

                                                (6 x 2 = 12 weightage)

Part C

Answer any **three** *questions.*
Each question carries **4** *weightage.*

22. (a) **Explain any** *one* **algorithm for problem reduction.**

    (b) With suitable example, explain how IA helps in solving problems.

23. With suitable example, explain "Resolution" and "Resolution in propositional logic".

24. (a) **Write notes on :** Non-monotonic reasoning system.

    (b) With suitable example, illustrate the use of *cut* and *fail* in **PROLOG** programming.

25. Write notes on :

    (a)   Frames.

    (b)   CYC.

    (c)   Parsing techniques.

26. Write notes on :

    (a)   Semantic analysis.

    (b)   Discourse and pragmatic processing.

27. Write notes on :

    (a)   CYCIN and DENDRAL.

    (b)   Expert System life cycle.

                                                 (3 x 4 = 12 weightage)