Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 75554

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Sixth Semester

Computer Technology

XCS 363/10677 SW 602 — ARTIFICIAL INTELLIGENCE

(Common to 5 Year M.Sc. Information Technology/M.Sc. Software Engineering)

(Regulation 2003/2010)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Create and justify your own definition of AI.

2. State at-least two advantages of production systems.

3. State any two advantages of using scripts as a knowledge representation structure.

4. State any two limitations of logic as a knowledge representation structure.

5. Why is a monotonic reasoning system cannot work in real life environments?

6. State Baye's theorem and explain in brief about certainty factor.

7. State any two problems in Natural language (fundamental problems) processing.

8. Where will Natural language processing systems be deployed? Give atleast two commercial NLP systems available.

9. State any two characteristics of an Expert system.

10. Draw the general model of learning.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Formulate an algorithm for Depth-first search with an example. (8)

    (ii) Write short notes on Hill-climbing technique. (8)

    Or

    (b) Give the statement of water-jug problem. Provide two (2) solutions for it and also comment on the solutions given by you. Also draw a search tree for the water- jug problem. List the production rules used for solving water jug problem. (16)

12. (a) (i) Explain :

        (1) PREDICATES

        (2) TERMS and

        (3) QUANTIFIERS in predicate or first-order logic with an example. (8)

    (ii) Perform resolution on the set of clauses (8)

    A : PVQVR

    B : ~PVR

    C : ~Q

    D : ~R

    Draw a deduction tree for the above mentioned resolution problem.

    Or

    (b) (i) Explain in brief the concept of reasoning using semantic networks. (8)

    (ii) Write short notes on conceptual dependency. (8)

13. (a) Explain in detail the non-monotonic reasoning systems with a suitable example. (16)

    Or

    (b) (i) Explain in brief about probability -based reasoning with an example. (8)

    (ii) Write short notes on Fuzzy based reasoning systems. (8)

14. (a) Construct a simple parse tree for the sentence

   "The green Cow munched the grass".

   Also discuss in brief about Recursive transition network passers (RTN).

   (16)

Or

(b) Discuss in detail about the various natural language analysis techniques with suitable examples. (16)

15. (a) Explain in detail the architecture of a typical expert system. (16)

Or

(b) State the major difficulties in knowledge acquisition process and discuss in brief the ways by which knowledge can be acquired from the domain expert. (16)

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