Code No: 9113

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
M.Tech. I Year (CSE) I-Semester (Make Up) Examinations, May-2015

Artificial Intelligence

Time: 3 hours Max. Marks: 70

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** questions from **Part-B***

Part – A (2 X 10=20 Marks)

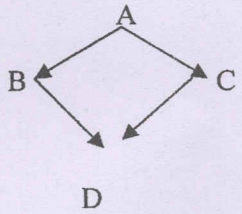
1. What are the various issues to be considered in the design of the search problems?
2. Compare DFS and BFS search algorithms.
3. Show that $\alpha: A \wedge (BVC)$ is deduced from $A \wedge B$
4. Show that given formula is unsatisfiable using semantic tableau method
   (BΛ C) Λ (C->B)
5. What are the main advantages of keeping KB separate from the control module in Knowledge Based System?
6. Draw a semantic network to represent the following
   "Every living thing needs oxygen to live . Every human is living thing. John is human"
7. Can we implement EXOR function using a perceptron? Justify your answer.
8. What is rote learning?
9. Define Alpha_cut in fuzzy logic.
10. What is the advantage of augmented transition network?

Part – B (5 X 10=50 Marks)

11. a) Write the A* algorithm and explain with 8-puzzle example. (5)
    b) Trace the constraint satisfaction procedure to find the solution for the following cryptarithmatic problem S E N D + M O R E = M O N E Y. (5)

12. a) Describe the steps involved in converting sentence in propositional logic into clausal form with example (7)
    b) Explain the knowledge representation using frames. (3)

13. a) Explain the each component of Expert system with a neat block diagram. (5)
    b) An admission committee for a college is trying to determine the probability that an admitted candidate is really qualified. The relevant probabilities are given in the Bayes network shown below. Calculate P(A/D). (5)



p(A)=1/2, p(B/A)=1, p(B/~A)=1/2, p(C/A)=1, p(C/~A)=1/2, p(D/B,C)=1, p(D/B,~C)=1/2, p(D/~B,C)=1/2, p(D/~B,~C)=0,
A= application is qualified, B=Applicant has high grade point average
C= Applicant has excellent recommendation, D=Applicant is admitted.

14. a) What are the different classification of clustering algorithms? Explain any one of them. (5)
    b) Explain the Perceptron learning algorithm. (5)

15. a) Write the Grammar and draw a parse tree for the sentence " Mike saw the girl in the garden with a telescope" (8)
    b) Find the Height(A) and Cardinality(A) for the given fuzzy set (2)
    A={(10,0.1),(20,0.2), (30,0.3), (40,0.4), (50,0.5)}

16. a) Explain the "Hill climbing " algorithm.? What are the problems with "Hill climbing " and how can they be solved? (5)
    b) Explain the support vector machine. (5)

17. Write short notes on
    i. Alpha-beta cutoff (4)
    ii. Hopfield networks (4)
    iii. Fuzzy set. (2)

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