



PG – 456

V Semester M.C.A. Examination, December 2016
(CBCS)
COMPUTER SCIENCE
MCA 503 : Artificial Intelligence

Time : 3 Hours

Max. Marks : 70

SECTION – A

Answer any five questions. Each carries 6 marks. (5×6=30)

1. What are the different characteristics of the problem which need to be analysed to select an appropriate method for solving the problem ? Explain.
2. Explain TMS with a neat diagram.
3. Discuss planning v/s state space search. Explain the components of planning.
4. What are the steps in natural language processing ? List and explain them briefly.
5. What is Game playing ? Discuss its application in artificial intelligence.
6. Express the following concepts as an Semantic Net structure with interconnected nodes and labelled arcs :

Company ABC is a software development company. Three departments within the company are sales, administration and programming. Joe is the manager of programming. Sue and Bill are programmers. Sue is married to Sam. Sam is an editor for Prentice Hall. They have three children and they live on Elm street. Sue wears glasses and is five feet four inches tall.

7. Write A* algorithm. Discuss its performance.
8. Explain the expert system architecture.

P.T.O.



SECTION – B

Answer any four questions. Each carries 10 marks.

(4×10=40)

9. Explain minmax algorithm for game playing. Discuss any two requirements for the algorithm to improve its performance.
10. Explain STRIPS algorithm with a suitable block world problem. Discuss its disadvantages.
11. a) Explain rule-based architecture with a neat diagram. 6
b) Explain different types of learning. 4
12. Given are the following English sentences :
- E1 : All employees earning \$ 1400 or more per year pay taxes.
E2 : Some employees are sick today.
E3 : No employee earn more than the President.
E4 : John earns \$ 1600 pre year.
- Translate the above sentences into predicate logic. Prove that John pays tax using appropriate logic.
13. What is Parse Tree ? Explain its advantages. Derive Parse Tree using the following rules :
- $S \rightarrow NP \ vP$
 $NP \rightarrow N$
 $NP \rightarrow DET \ ADJ \ N \ PP$
 $VP \rightarrow V \ PP$
 $PP \rightarrow PREP \ NP$
- Determine whether the following sentence is accepted by the above grammar –
" Jack slept on the brown table".
14. Write short notes on :
- a) Waltz algorithm. 5
b) Means end analysis. 5
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