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II Semester M.C.A. Degree Examination December - 2024**COMPUTER SCIENCE****Artificial Intelligence****(CBCS Scheme Non-NEP - y2k20)****Paper : 2MCA6****Time : 3 Hours****Maximum Marks : 70****Instructions to Candidates : Answer both the sections.****SECTION - A****Answer any Five questions. Each question carries 6 marks.****(5×6=30)**

1. Define rational agents. Discuss the different types of environment in which they operate.
2. Explain the Minimax search procedure with an example.
3. What is a knowledge-based agent? Explain the Wumpus World problem.
4. Express the following using FOPL:
 - a) All birds except ostrich can fly.
 - b) Not all students like both Maths and Science.
 - c) Some children do not like chocolates.
 - d) Students who either work hard or are lucky pass the exams.
 - e) Not everyone believes in God.
 - f) People who exercise and eat nutritious food are healthy.
5. Explain STRIPS and K-STRIPS.
6. What is Decision tree learning? Explain.
7. Explain with a neat figure, architecture of Expert Systems.
8. What do you understand by deep learning networks? Discuss the applications of CNN and RNN.

[P.T.O.]



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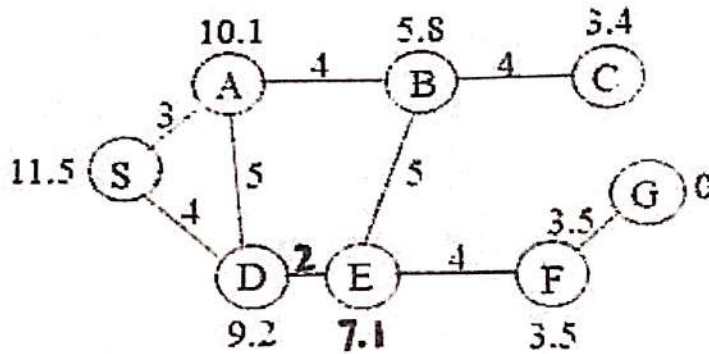
SECTION - B

Answer any Four questions. Each question carries 10 marks.

(4×10=40)

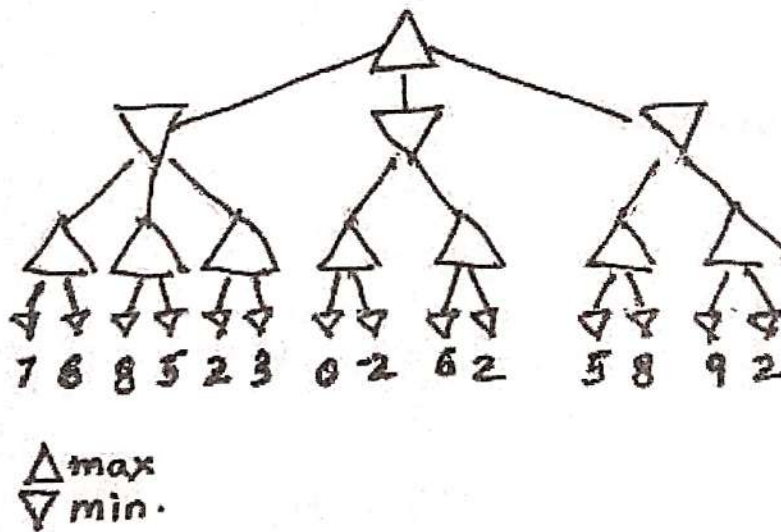
(6)

9. a) Solve the following using the A* algorithm.



- b) What is Constraint satisfaction problem? Explain with example. (4)

10. a) What is Alpha-Beta pruning? Solve the following Alpha-Beta pruning problem. (6)



- b) Explain briefly on-line search agents in AI. (4)

11. a) Compare Propositional Logic and First Order Predicate Logic. (5)

- b) What is Truth Maintenance (TMS)? Explain. (5)



12. a) Differentiate between Forward Chaining and Backward chaining. (5)
b) What is proof by resolution? Explain with an example. (5)
13. a) What is ensemble learning? Explain briefly the ensemble techniques. (5)
b) With respect to Uncertainties discuss i) Probabilistic learning ii) Fuzzy logic. (5)
14. a) What is NLP? State the relevance of Natural Language Processing (NLP) in AI? (4)
b) Draw the parsing tree defining your own grammar rules for the sentence "The boy ate a popsicle". (6)
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