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Reg. No.

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II Semester M.C.A. Degree Examination December - 2023

**COMPUTER SCIENCE****Artificial Intelligence**

(CBCS Scheme : 2020-21 Y2 K20)

Paper : 2MCA6

Time : 3 Hours

Maximum Marks : 70

**Instructions to Candidates**

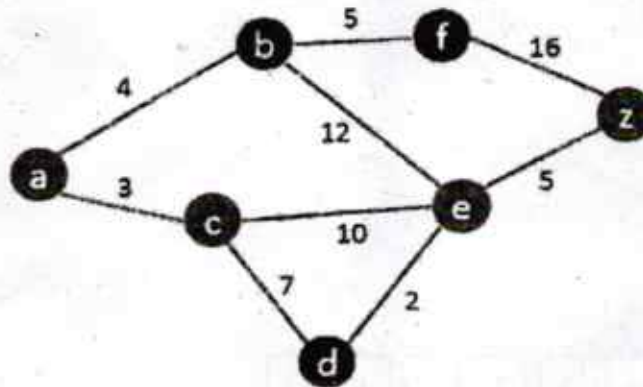
- 1) Answer any Five questions from Section - A
- 2) Answer any Four full questions from Section - B

**SECTION - A**

Answer any Five. Each question carries 6 marks.

(5×6=30)

1. What is a rational agent? Explain the structure of agents.
2. Solve the following using A\* algorithm.



The Heuristics are as under:

a	14
b	12
c	11
d	6
e	4
f	11
g	0

[P.T.O.]



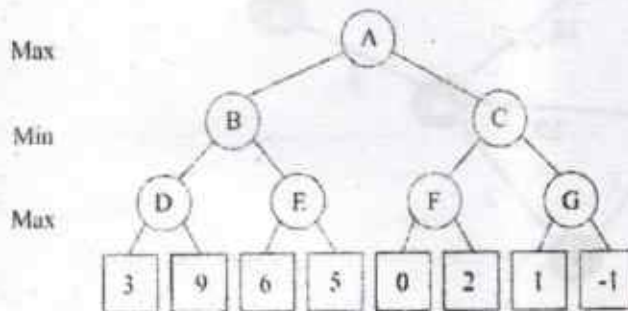
3. Compare the following:
- Forward Chaining v/s Backward Chaining.
  - Propositional logic v/s First Order Predicate logic.
4. Define knowledge-based agent. Explain Wumpus world problem.
5. Explain various forms of learning. How is explanation-based learning done?
6. Develop parse tree structure for the sentence "Jeevitha slept on the bench" by constructing your own grammar rules.
7. What is Expert system? Explain its architecture.
8. What is Natural Language processing? Explain its advantages and roles in AI.

### SECTION-B

Answer any Four. Each question carries 10 marks.

(4×10=40)

9. a) What is Game Playing? Discuss Minimax search procedure with example (6)  
b) Explain on-line search agents in AI. (4)
10. a) Write a note on agent environments. (5)  
b) Solve the following Alpha-Beta pruning problem. (5)



11. a) Express the following using FOPL: (5)
- All birds except ostrich can fly.
  - Not all students like both Maths and Science.
  - Some children do not like chocolates.
  - Students who either work hard or are lucky pass the exams.
  - Not everyone believes in God.
- b) Discuss Strips and K-Strips in Plan generating systems. (5)



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12. Write short notes on:

(5+5)

- a) Truth Maintenance Systems.
- b) Heuristic functions.

13. a) Briefly discuss Fuzzy Logic.

(4)

b) What is robotics? Explain Robot Kinematics.

(6)

14 Explain Syntactic processing, semantic analysis, discourse and pragmatics in Natural Language processing.

(10)

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