Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 2436279

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024
Sixth Semester
Artificial Intelligence and Data Science
U20AI602 – AI KNOWLEDGE REPRESENTATION AND REASONING
(Regulation 2020)

Time: Three Hours | Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Define state space search.

2. Write the production system characteristics.

3. What are the quantifiers used in logical representation?

4. Define plateau and Ridge.

5. Discuss the nonmonotonic reasoning.

6. Mention the features of bayes theorem.

7. What is uncertainty in reasoning?

8. Explain the concept of semantic networks.

9. Explain how logistic regression is different from linear regression.

10. How to evaluate and choose the best hypothesis?

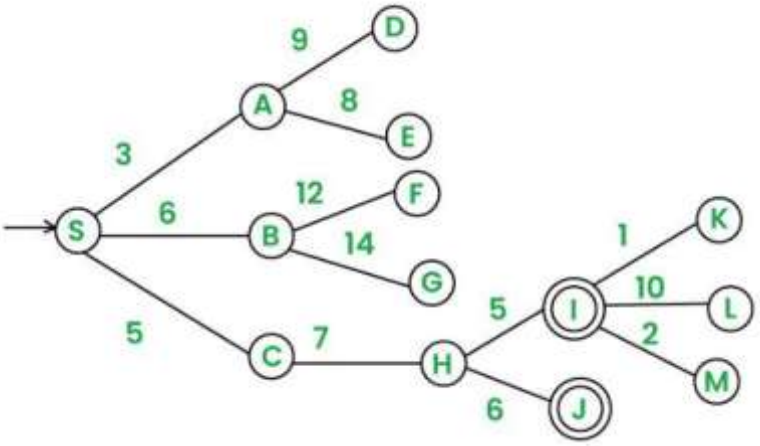
PART – B (5 x 16 = 80 Marks)

11. (a) Discuss the characteristics of problem and production systems. (16)

(OR)

(b) Explain in detail about intelligent agents and environments. (16)

12. (a) Apply the best first search concept for the below mentioned graph. (16)

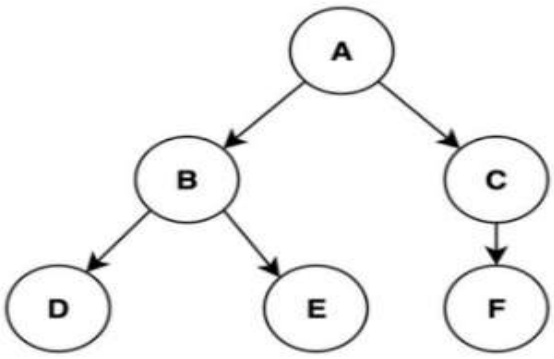


(OR)

(b) Difference between propositional logic and first order predicate logic. Apply a suitable logical representation for the below mentioned statement. (16)

(i) All students like cricket
(ii) Some students are good
(iii) Tom is a cat
(iv) Raj likes apple
(v) Someone likes something

13. (a) Differentiate between breadth first search and Depth first search with suitable example.Consider the following directed graph to solve DFS and BFS. (16)



(OR)

(b) Provide brief explanation on: (16)
(i) Probability and bayes theorem
(ii) Certainty factors and rule-based systems.

14. (a) Explain the concept of semantic net, frames and script. Draw the semantic network that represents the data given below: (16)
(i) Mammals have fur.
(ii) All mammals are animals.
(iii) A bird is an animal.
(iv) A cat is a mammal.
(v) Tom is a cat.
(vi) Tom is owned by John
(vii) Tom is ginger in colour

(OR)

(b) Describe the primitive action in conceptual dependency and illustrate the representation of various notation in conceptual graph. (16)
(i) A cat is on a mat.
(ii) Every cat is on a mat.
(iii) John is going to Boston by bus.
(iv) A person is between a rock and a hard place.
(v) Tom believes that Mary wants to marry a sailor

15. (a) Explain in detail about supervised and unsupervised learning with suitable example. (16)

(OR)

(b) Discuss the principles of ensemble learning and explain the different probabilistic models in detail. (16)

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