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TCS–421

B. TECH. (CSE)
(FOURTH SEMESTER)
MID SEMESTER
EXAMINATION, March, 2024
FUNDAMENTAL OF STATISTICS & AI

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) What is Intelligent System ? Explain *two* Intelligent systems which are currently working in the field of Robotics. (CO1)

OR

(b) Draw pictorial representation of different domain of Artificial Intelligence. Also explain *two* Intelligent systems under

P. T. O.

Natural language processing which are currently working in real word. (CO1)

2. (a) How AT is contributing in E-commerce platforms like Amazot and Alibaba ? Explain at least *two* main roles of AI in e-commerce platform. (CO1)

OR

(b) What are Myths About Advanced AI ? Explain some challenges and Solutions in Implementing AI. (CO1)

3. (a) Compare and contrast uninformed search algorithms (e.g., breadth-first search, depth-first search) with informed search algorithms (e.g., A* search, iterative deepening A*). Discuss their strengths and weaknesses in different problem-solving scenarios. (CO2)

OR

(b) Describe the characteristics of an effective heuristic function. Discuss the trade-offs

between accuracy and computational complexity when designing heuristic functions. (CO2)

4. (a) Provide a detailed explanation of how A* search works, including, its algorithmic steps and the role of heuristic functions in guiding the search process. (CO2)

OR

(b) Explain the Simulated Annealing algorithm and how it addresses the limitations of Hill Climbing in finding the global optimum. (CO2)

5. (a) Discuss various search strategies used in state space search, algorithms. Compare breadth-first search, depth-first search, and heuristic search algorithms such as A* search. Provide examples to illustrate their differences. (CO2)

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OR

(b) Discuss the strengths and weaknesses of the Hill Climbing algorithm. Provide examples of scenarios where Hill Climbing may or may not be effective.

(CO2)