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**Assignment 1**

Subject: Artificial Intelligence Subject Code: AI 302T

Class: B.Tech CSE 3rd Faculty Name: Neha Jain, Reeta Mishra

Date of Issue: 2/2/24 Date of Submission:8/2/24 Total Marks: 20

**All questions are compulsory to attempt.**

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| S.No. | Questions | Max Marks | CO | BL |
| 1 | Differentiate between supervised and unsupervised learning techniques in AI. Provide examples of real-world applications for each approach and explain the key differences in their training processes. | 3 | CO1 | L2 |
| 2 | Evaluate the ethical implications of implementing AI systems in various contexts. Discuss potential biases, privacy concerns, and social implications associated with AI technologies. Propose strategies for mitigating ethical challenges in AI development and deployment. | 4 | CO1 | L3 |
| 3 | Identify a problem domain where an expert system could be beneficial. Design an expert system that incorporates knowledge representation and reasoning to provide solutions within that domain. Explain the components and functionalities of your proposed system. | 5 | CO1 | L3 |
| 4 | Given a specific problem domain (e.g., healthcare or finance), propose a machine learning model that could be applied to address a relevant challenge. Justify your choice of model and describe how it could be trained and evaluated. | 5 | CO1 | L3 |
| 5 | Describe the role of algorithms in artificial intelligence. Differentiate between various algorithms used in AI, such as clustering algorithms, classification algorithms, and optimization algorithms. Provide insights into how the choice of algorithm impacts the model's performance in different scenarios. | 3 | CO1 | L2 |