

ASSIGNMENT-5

- (a) Discuss the historical development of artificial intelligence.
 - (b) For each of the following agents, develop a PEAS description of the task environment-
 - (i) Mathematician's theorem proving assistant
 - (ii) Satellite image analysis system
 - (iii) Internet book shopping agent
 - (iv) Medical diagnosis system
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- (a) Discuss Simulated Annealing search algorithm with its advantages and disadvantages.
 - (b) What are the steps to define a problem? Explain. Also discuss various components of a problem.
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- (a) Discuss algorithm of conversion to clause form. Convert the following to clause form using algorithm-
$$\forall x[\mathbf{Brick}(x) \rightarrow (\exists y\{\mathbf{On}(x, y) \cap \neg\mathbf{Pyramid}(y)\} \cap \neg\exists y \{\mathbf{On}(x, y) \cap \mathbf{On}(y, x)\} \cap \forall y\{\neg\mathbf{Brick}(y) \rightarrow \neg\mathbf{Equal}(x, y)\})]$$
 - (b) Explain the concept of Alpha-beta pruning. Write Alpha-beta search algorithm.
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- (a) Discuss various application domains of machine learning.
 - (b) Describe major steps involved in a learning process. Also discuss how learning systems are classified.
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- (a) What is pattern recognition? Explain various steps involved in the designing of a pattern recognition system with the help of a diagram.
 - (b) Explain Nearest Neighbor rule used for classification.
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