6E1555

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B.Tech. VI Sem. (Main/Back) Examination, June - 2022
Informaiton Technology
6IT4-05 Artificial Intelligence

Time : 2 Hours

Maximum Marks : 80
Min. Passing Marks : 28

Instructions to Candidates:

*Attempt **all five** questions from **Part A**, **four** questions out of **six** questions from **Part B** and **two** questions out of **three** from **Part C**.*

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

PART - A

(Answer should be given up to **25** words only)

All questions are **compulsory** **(5×2=10)**

1. What is Artificial Intelligence?
2. What is Alpha - beta pruning?
3. Define NLP (Natural Language Processing).
4. What is Expert system?
5. Write the difference between supervised and unsupervised learning?

PART - B

(Analytical/Problem solving questions)

Attempt any **four** questions **(4×10=40)**

1. Explain the steepest Hill - Climbing techniques. Also explain the various potential problems associated with hill climbing. How we can overcome these problems?
2. What are the steps in natural language processing (NLP)? List and explain in detail.
3. Explain Approaches to knowledge representation using predicate logic with example.

4. Enumerate classical "water Jug problem". Describe the state space for this problem. Solve this problem by giving its operation sequence.

5. What do you mean by learning? Explain any one technique which is used in learning.

6. Discuss the algorithm of A* with the advantage over best first search procedure?

PART - C

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any two questions (2×15=30)

1. Describe Alpha - beta pruning and give the other modifications to minimax procedure to improve its performance.

2. Explain with neat diagram the architecture of expert system and mention its features.

3. i. Discuss the need and structure of Bayesian Network.
   ii. Discuss the various types of machine learning with appropriate examples.
