

Dec, 2022

BCA- V SEMESTER

Artificial Intelligence (GEC-1(BCA-17-308))

Time: 3 Hours

Max. Marks:75

- Instructions:**
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
 2. Answer any four questions from Part -B in detail.
 3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

- Q1 (a) What is the criterion to check the success of a machine? (1.5)
- (b) Represent the knowledge about "Cricket National player using semantic net". (1.5)
- (c) Differentiate between FOPL over PL? (1.5)
- (d) List the various approaches used in knowledge representation. (1.5)
- (e) Represent the following statements using Thematic Role Frame "External examiner will reach the University at 10.00 A.M". (1.5)
- (f) Comment on the completeness and optimality of the "best first search technique". (1.5)
- (g) Write short note on Explanation based learning. (1.5)
- (h) Why heuristics search is preferred over brute force search techniques? (1.5)
- (i) What is difference between syntactic and semantic processing. (1.5)
- (j) Differentiate b/w Best First Search Vs Depth First search (1.5)

PART -B

- Q2 (a) What is AI? Explain its origin and its various applications. (5)
- (b) What a note on how artificial neuron models from the biological neuron. Also explain different type of learning in ANN. (10)
- Q3 (a) What are the characteristics of AI problems? Apply constraint satisfaction to solve following crypto-arithmetic problem. (10)
- SEND
+MORE

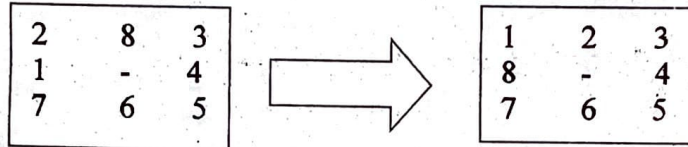
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- (b) What is difference between Alpha vs Beta pruning? (5)
- Q4 (a) Give an algorithm for conversion of predicates into clauses. (10)
- (b) Discuss various learning techniques in detail. (5)
- Q5 (a) Write a note on Expert System Shells. (10)
- (b) Consider the following piece of knowledge
- Rahul, Krishan and Sanjay are members of the Sports club.
 - Every Sports club member who is not a runner is a cricket player.
 - Cricket players do not like rains
 - Anyone who does not like the walk is not a runner

- Krishan dislikes whatever Sanjay dislikes and likes what Krishan likes
- Krishan likes walking and running.

Represent the knowledge as predicate statements. Process the query "Is there a sports club member not a cricket player but a runner." Using resolution by refutation method.

Q6 What is an Expert System? Can Expert System do mistakes? Give architecture and working of Rule Base Expert System? (15)

Q7 (a) What are different problems with Hill Climbing and how are they resolved? Solve the following problem using Hill Climbing. (10)



(b) What is problem state space? Explain water jug problem to explain this? (5)
