16/5/24 (M)

Roll No. .....

Total Pages : 3

311603

May 2024

BCA VI SEMESTER

Artificial Intelligence (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

1. (a) Give basic components of Intelligence. (1.5)

(b) What are domain area of AI. (1.5)

(c) What do you mean by problem state space. (1.5)

(d) What are good features of a knowledge representation scheme. (1.5)

(e) What is a production system. (1.5)

(f) What are *instance* and is a predicates. (1.5)

(g) What is learning by problem solving. (1.5)

(h) What is the difference between a fact and a proposition. (1.5)

(i) What is an expert system. (1.5)

(j) What is a computational function in FOPL and its benefits. (1.5)

PART–B

2. (a) What is a heuristic function and how is it designed. (7)

(b) Explain how will you test whether a machine is intelligent or not. (8)

3. (a) What are the issues in the acquisition of knowledge for an Intelligent system. (6)

(b) Apply DFS abd BFS on the following problem. (9)

2	3	1
4	6	5
8	7	

Initial State

1	2	3
4	5	6
7	8	

Final State

4. (a) Using truth table, prove the following logical equivalence. $(p \wedge q) \rightarrow r \equiv p \rightarrow (q \rightarrow r)$. (7)

(b) Explain and give algorithm for resolution of first order predicates (8)

5. (a) Explain and give algorithm for Unification step involved in resolution. (7)

(b) Explain how natural language semantic processing is done. (8)

6. (a) Write a sort note on Rote learning. (7)

(b) Give architecture of an Expert System. (8)

7. (a) Solve the following cryptoarithmetic problem by applying constraint satisfaction algorithm. (9)

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(b) What do you mean by Discourse and Pragmatic processing of a natural language sentence. (6)