B.Tech. (Computer Science & Engineering) Fifth Semester (C.B.C.S.)

Artificial Intelligence

Pages : 2

Time : Three Hours

PSM/KW/23/2690

Max. Marks : 70

Notes : 1. All questions carry marks as indicated
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Due credit will be given to neatness and adequate dimensions.
8. Assume suitable data whenever necessary.
9. Diagrams and chemical equations should be given whenever necessary.
11. Illustrate your answers whenever necessary with the help of neat sketches.
12. Use of non programmable calculator is permitted.

1. a) Define Artificial Intelligence Explain the task domains of AI. 7

b) Explain different problem characteristics in detail. 7

OR

2. a) Define production system. Explain its characteristics and give the production system for a water Jug problem. 7

b) What is state space? Explain with example. 7

3. a) Explain best first searching with example. Also give its advantages and disadvantages. 7

b) State the difference between simple hill climbing and steepest ascent hill climbing. 7

OR

4. a) Explain means-end analysis 7

b) Write a note on best-first search. Also explain the use of AO* Graphs. 7

5. a) Write short note on predicate and prepositional logic. 7

b) What are semantic network? What are the properties of semantic N/W? 7

OR

6. a) Consider the following sentences- 7

i) John likes all kinds of food

ii) Apples are food

iii) Chicken is food

iv) All employees earning rupees two lakhs or more pay taxes.

v) Everyone likes ice cream menus there is no one who does not like ice cream

vi) Brothers are siblings
Translate these sentences into formulas in predicate logic.

b) Write short note on **any three.**

i) Backward Chaining ii) Semantic nets

iii) Frames iv) scripts

7. a) Discuss Baye's Theorem of Probability in detail 7

b) Explain Fuzzy logic with example. 7

OR

8. a) Explain behavior & environment in which a particular agent operates. 7

b) Write short note on: **any three.** 7

i) Backward chaining ii) Semantic nets

iii) Frames iv) Scripts

9. a) What is learning? Draw and explain the block diagram of general learning model. 7

b) Define expert system. Write its characteristics features. Also give the block diagram architecture of expert system. 7

OR

10. a) Explain Natural language processing and types of grammar used in Natural language processing. 7

b) What are the different types of learning? Explain each one with example. 7

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