B.E. (Computer Science Engineering) Sixth Semester (C.B.S.)

Artificial Intelligence

P. Pages : 2 **NRJ/KW/17/4545**

Time : Three Hours * 0 1 2 8 * Max. Marks : 80

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. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain task domains of artificial intelligence. **7**

b) Explain problem characteristics with example. **7**

OR

2. a) Compare and contrast between Depth first search and Breadth first search. **7**

b) You are given two jugs, a 4-gallon and a 3-gallon one. Neither has any measuring marks on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2-gallons of water into a 4-gallon jug? Discuss the problem in view of A.I. **7**

3. a) Explain simple hill climbing algorithm. **6**

b) What is simulated Annealing? Explain in brief. **7**

OR

4. a) Explain uniformed search techniques in detail. **6**

b) What is constrain satisfaction? Trace the constrain satisfaction procedure solving the following cryptarithmetic problem. **7**

$$\begin{array}{r} \text{CROSS} \\ +\ \text{ROADS} \\ \hline \text{DANGER} \end{array}$$

5. a) Explain different approaches to knowledge representation. **5**

b) Consider following sentences **8**

- John likes all kind of food
- Apples are food
- Chicken is a food
- Anything any-one eats and isn't killed by is food.
- Bill east peanuts and is still alive
- Sue eats everything Bill eats.

i) Translate these sentences into formulas in predicate logic
ii) Prove that John likes peanuts using resolution.
iii) Use resolution to answer the question "What food does sue eat?"

OR

6.	a)	Explain knowledge based system with help of block diagram.	**6**
	b)	Write a note on forward vs backward reasoning.	**7**
7.	a)	Explain Bay's rule in detail.	**7**
	b)	Explain the role of furry logic in AI.	**6**

OR

8.	a)	Explain Bayesian Networks with example.	**7**
	b)	Explain Axiom probability in detail.	**6**
9.	a)	What is learning? Explain the different types of learning with example.	**7**
	b)	Explain machine learning with the help of block diagram.	**6**

OR

10.	a)	Explain what is mean by learning by taking advice?	**7**
	b)	"Leaving by problem solving" explain in detail.	**6**
11.	a)	What is the role of meth knowledge in expert system.	**7**
	b)	Explain expert system shell in detail.	**7**

OR

12.	a)	Explain various aspects in knowledge engineering.	**6**
	b)	Draw a neat diagram of expert system architecture and explain it in detail. Enlist applications of expert systems.	**8**

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