B.E.(Information Technology) Semester Seventh (C.B.S.)
Artificial Intelligence

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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.
9.   Assume suitable data wherever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a)   Explain the Turing test approach carried out by Alan Turing.   **5**

b)   Write the applications of AI.   **5**

c)   Explain the production system and its characteristics.   **4**

OR

2. a)   Explain the problem characteristics for the problems given below :   **9**
i)   Travelling sales man problem
ii)   Chess playing
iii) 8-puzzle problem.

b)   Explain the difference between monotonic and non-monotonic production systems. Give one example of monotonic and non-monotonic production system.   **5**

3. a)   What is the difference between uniformed search strategies and informed search strategies? Write the algorithm for breadth first search strategy.   **6**

b)   Write the steps used by generate - and - test algorithm.   **7**

OR

4. a)   Write the algorithm for Hill climbing. Write the hurdles and the solutions of the same found with hill climbing approach.   **6**

b)   Explain the mean-ends analysis with suitable example.   **7**

5. a)   Write the issues related with knowledge representation in AI, discuss them.   **6**

b)   What do you mean by ontology ? Write the advantages of using ontology. Write the types of ontology.   **7**

OR

6. a)   Write about the propositional logic used to represent the knowledge in AI.   **6**

b)   Explain the resolution principle with suitable example.   **7**

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7.	a)	Represent the following statements into predicate logic **any three.**	**6**

         i)   John and Mary are good friends.

         ii)   If you work hard you will succeed.

         iii)   All flowers are red.

         iv)   Everyone is loyal to someone.

| | b) | Write the <u>frame</u> to describe the knowledge about -
 i)   fan   ii)   chair | **8** |

OR

8.	a)	Explain with suitable example inheritance in semantic network.	**6**
	b)	Explain **any two** concepts with suitable example.	**8**

         i)   TMS (Truth Maintenance System)

         ii)   Types of Transition networks, RTN and ATN

         iii)   NLP and its applications.

9.	a)	Explain the knowledge acquisition process.	**6**
	b)	Explain with neat diagram the architecture of expert system and components involved in the architecture.	**7**

OR

10.	a)	What are advantages of expert system. Explain the MYCIN expert system.	**6**
	b)	Explain the following in detail **any one.**	**7**

         i)   Structure of Rule based expert system.

         ii)   Characteristics of conventional system.

         iii)   Expert system shell.

11.	a)	What do you mean by posterior probability, prior probability ? Explain the need of Bayes theorem in AI.	**7**
	b)	What do you mean by certainty factor ? Why we need to calculate the certainty factor or what is use of value of certainty factor (C.F.) ?	**6**

OR

12.	a)	Explain with example crisp sets and fuzzy sets.	**6**
	b)	Write about the fuzzy logic write the applications of fuzzy logic, explain any one application of fuzzy logic.	**7**

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2

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