CLASS: MCA   SEMESTER : V
BRANCH: MCA   SESSION : MO/18

SUBJECT: MCA7305 ARTIFICIAL INTELLIGENCE

TIME: 3 HOURS   FULL MARKS: 60

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
4. **Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)   How is problem solving performance measured? Write a PEAS description for an automated taxi.   [6]
Q.1(b)   Consider the following problem: [6]
         You are given two jugs, a 4 gallon one and a 3-gallon one, a pump which has unlimited water which
         you can use to fill the jug, and the ground on which water may be poured. Neither jug has any
         measuring on it. How can you get exactly 2 gallons of water in the 4-gallon jug? Solve the problem
         clearly mention the state space and solution methodology.

Q.2(a)   What is meant by intelligent agent? Explain the different types of intelligent agents.   [6]
Q.2(b)   How is a task environment specified? Explain in detail the various properties of the task   [6]
         environment.

Q.3(a)   Explain the Uniform Cost Search (UCS) with its merits and demerits.   [6]
Q.3(b)   What is A* algorithm? How it is different from greedy search?   [6]

Q.4(a)   What do you mean by pruning in artificial intelligence? Justify how alpha-beta pruning can make   [6]
         search faster?
Q.4(b)   What do you mean by knowledge mapping? Explain the various knowledge representation   [6]
         techniques.

Q.5(a)   Represent the following sentences in Predicate Logic: [6]
         i) Any one passing his engineering exam and winning the lottery is happy.
         ii) But anyone who studies or is lucky can pass all his exam.
         iii) Ram did not study but Ram is lucky.
         iv) Anyone who is lucky wins the lottery.
Q.5(b)   Using resolution answer "Is Ram happy?"   [6]

Q.6(a)   What is probabilistic reasoning? Explain the Dempster -Shafer Theory.   [6]
Q.6(b)   What is planning? Explain the components of a planning system.   [6]

Q.7(a)   What do you mean by machine learning? Explain the concept of learning with respect to neural   [6]
         networks.
Q.7(b)   Briefly describe the components of an expert system with block diagram.   [6]

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