WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 6th Semester Examination, 2022

CMSACOR13T-COMPUTER SCIENCE (CC13)

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.

GROUP-A

1.   Answer any *four* questions from the following   2×4 = 8

   (a) Define the term "Artificial Intelligence".

   (b) What is adversarial search?

   (c) State the difference between tautology and contradiction with an example.

   (d) State the main advantage of any heuristic search algorithm over blind search algorithm.

   (e) What is an "*agent*" in AI?

   (f) What are the various issues in knowledge representation?

   (g) What is inferential knowledge?

GROUP-B

Answer any *four* questions from the following   8×4 = 32

2. (a) What is heuristic search?   2+2+4

   (b) What do you mean by Ridge?

   (c) Explain the concept of Best-First Search with example.

3. (a) Compare Database and Knowledgebase.   3+5

   (b) Consider the following axioms-

   $P, (P \wedge Q) \rightarrow R, (S \vee T) \rightarrow Q, T$

   Prove that R is true by resolution.

4. (a) What kind of knowledge is represented by the semantic nets?   2+(3+3)

   (b) Write short notes on:

   (i) Scripts (ii) Frames

5. (a) What do you understand by a task environment? Differentiate between the following environments with example: 1+2+2

    (i) Fully observable vs. partially observable

    (ii) Discrete vs. continuous

  (b) What is the state-space model of a search problem? Design the state-space model for the 8-Queen problem. 1+2

6. (a) Convert the following sentences into predicate logic expressions and then its clause form: 6

    (i) All people who are smart but not poor are happy.

    (ii) Sam eats everything Mary Eats.

    (iii) Every person in the party loves every child.

    (iv) If it is a bird, it can fly.

  (b) What is Skolemisation? 2

7.   Write short notes on the following (any *two*): 4+4

  (a) MINIMAX algorithm

  (b) A* algorithm

  (c) Water jug problem.

    N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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