UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 6th Semester Examination, 2021

CC13-COMPUTER SCIENCE (61)

ARTIFICIAL INTELLIGENCE

Full Marks: 40

ASSIGNMENT

The questions are of equal value.
The figures in the margin indicate full marks.

Answer any *two* questions 20×2 = 40

1. (a) Define Artificial Intelligence and list the task domain of Artificial Intelligence. List the properties of Knowledge. Explain production system. — 10

   (b) What are the various heuristic techniques? Explain how they are different from the solution guaranteed techniques. — 10

2. (a) In which scenarios depth-first search would be efficient instead of breadth-first search? Explain best-first search with example. — 10

   (b) How OR graphs are used in problem reduction? Explain A* algorithm in this regard. Discuss the conditions for optimality of this technique. — 10

3. (a) Write short note on Frames. Explain how semantic networks are used in representation and reasoning. — 5+5

   (b) Express the following semantic net. — 10

   Company ABC is a software development company. Three departments within the company are Sales, Administration and Programming. Joe is the manager of Programming. Bill and Sue are programmers. Sue is married to Sam. Sam is an editor for Prentice Hall. They have three children and they live on Elm street. Sue wears glasses and five feet four inches tall.

4. (a) What is Script? List the components of a script. Write a script for ordering scene in a restaurant. — 10

   (b) Write the alpha-beta search algorithm. What is the role of the transposition table in this algorithm? — 10

5. (a) List and explain various types of intelligent agents in AI. Illustrate the functioning of each agent. 6

   (b) Consider the following facts: 14

      (i) John likes all kind of food

      (ii) Apple and vegetable are food

      (iii) Anything anyone eats and not killed is food

      (iv) Anil eats peanuts and still alive

      (v) Harry eats everything that Anil eats.

     Prove by **resolution** that:

       John likes peanuts.

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