

## B.Sc. Semester-VI Examination, 2022-23

### COMPUTER SCIENCE [Honours]

Course ID : 61511

Course Code : SH/CSC/601/C-13

Course Title : Artificial Intelligence

Time : 1 Hour 15 Minutes

Full Marks : 25

*The figures in the right-hand margin indicate marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

#### UNIT-I

1. Answer any five questions from the following:

1×5=5

- a) What is constraint Satisfaction Problem (CSP)?
- b) Give some real world applications of AI.
- c) What are the different domains /subsets of AI?
- d) Explain turing test in AI.
- e) What is meant by semantics Net?
- f) What do you mean by Heuristic Search Technique?
- g) What is predicate logic in AI?
- h) What do you mean by Backtracking in AI?

[Turn Over]

## UNIT-II

2. Answer any **two** questions from the following:

$$5 \times 2 = 10$$

a) Which algorithm is used in tic-tac-toe? How does Tic-Tac-Toe AI Algorithm works? What is the time complexity in AI?

$$1 + 3 + 1 = 5$$

b) What are the limitations of hill climbing algorithm? How do you use the A\* algorithm?

$$3 + 2 = 5$$

c) What do you mean by inferential Knowledge? What are the various techniques of knowledge representation in AI?

$$2 + 3 = 5$$

d) Which algorithm is better between BFS and DFS? Explain why?

## UNIT-III

3. Answer any **one** question from the following:

$$10 \times 1 = 10$$

a) What do you mean by game theory? Compare between the min-max and alpha-beta pruning algorithm.

$$2 + 3 + 5 = 10$$

Prove the following expressions by means of resolution:

i)  $\text{man}(\text{Marcus})$

- ii) Pompeian(Marcus)
  - iii)  $\neg \text{pompeian}(x1) \vee \text{Roman}(x1)$
  - iv) Ruler(Caesar)
  - v)  $\neg \text{Roman}(x2) \vee \text{loyalto}(x2, \text{Caesar}) \vee$   
 $\text{hate}(x2, \text{Caesar})$
  - vi)  $\text{Loyalto}(x3, \text{fl}(x3))$
  - vii)  $\neg \text{man}(x4) \vee \neg \text{Ruler}(y1) \vee$   
 $\neg \text{tryassassinate}(x4, y1) \vee \text{loyalto}(x4, y1)$
  - viii)  $\text{tryassassinate}(\text{Marcus}, \text{Caesar})$
- b) Define Production System in AI. Explain the water jug problem in AI. Write down the important requirements for control Strategies.

2+5+3=10