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SECOND YEAR (B.C.A(Science))
BCA24205: Artificial Intelligence
(Semester IV)

Program: BCA
Program Specific: BCA(Science)
Course Type: Minor
Paper: I

Credits: 2
Time: 2 Hours
Max. Marks: 30
SET: A

Instructions to the candidate:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labelled diagram wherever necessary.

Q1) Answer the following

[5 X 1= 5]

- a) List any two objectives of Artificial Intelligence.
- b) Define State Space Search.
- c) What do you mean by predictive analytics?
- d) What is Natural Language Processing (NLP)?
- e) Define Propositional Logic.

Q2) Answer the following (Attempt any 5/7)

[5 X 2 =10]

- a) Discuss the challenges of bias and fairness in AI.
- b) Write a short note on the production System.
- c) List different properties of the task environment.
- d) Draw a neat labelled diagram of Agent.
- e) Give an example of Propositional Logic and Predicate Logic.
- f) Write a short note on AI powered chatbots.
- g) Define Constraint Satisfaction Problem.

Q3) Answer the following/Write short notes on following (Attempt any 2/4)

[2 X 5 = 10]

- a) Illustrate Means-Ends Analysis and explain it with a proper example.
- b) Explain the different types of Machine learning with examples.
- c) Explain different types of Artificial Intelligence Agent.
- d) Give State Space representation for “Water Jug Problem” mentioned below.
[There are 2 jugs of 4 L and 3 L respectively ,we want 2 L water in 4L jug]

Q4) Answer the following (Attempt any 1/2)

[5 X 1 = 5]

- a) Translate the following statements in First Order Predicate Logic (FOPL).
- i. Raghav likes all kinds of food.
 - ii. Apple and Dairy products are food.
 - iii. Anything anyone eats and is not killed is food.
 - iv. Preet's eats cashew and is still alive.
- b) Define Hill Climbing along with its features and explain State-Space Diagram for Hill Climbing. Also state its problems.

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