

Charotar University of Science and Technology [CHARUSAT]
Faculty of Technology and Engineering
Devang Patel Institute of Advance Technology and Research
Department of Computer Science & Engineering
Subject: CS341 Artificial Intelligence
Unit Test - I

Semester: 5th Semester B. Tech. (C.S.E.)

Maximum Marks: 30

Date: 08/08/2019, Thursday

Time: 10:10 am to 11:10 am

Instructions:

- (i) Attempt *all* the questions.
- (ii) Figures to the right indicate *full* marks.
- (iii) Make suitable assumptions and draw neat figures wherever if required.

Q-1 Answer the following questions. [05]

- (a) What is artificial intelligence? [01]
- (b) Define: (i) State (ii) State Space [01]
- (c) What is the difference between Fuzzy logic and Probability? [01]
- (d) How many input neurons, hidden neurons and output neurons are required to make neural network to classify circles and diamonds form figure. 1? [02]

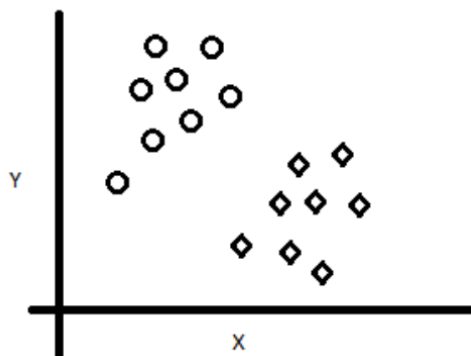


Figure. 1

Q-2 Answer the following questions. (Any Three) [15]

- (a) Classify following problems in uncertain or certain outcome:
(i) water jug (ii) playing cards (iii) 8 puzzle [05]
Classify following problems in recoverable or irrecoverable problems:
(iv) Ludo game (v) Maze game
- (b) What is Artificial Neural Networks? Explain in detail. [05]
- (c) Explain the different approaches to knowledge representation. [05]
- (d) Define: [05]
 - 1. Uniformed Search
 - 2. Informed Search
 - 3. Declarative Knowledge
 - 4. Support and Core of a Fuzzy Set
 - 5. Fuzzy set

- (e) Let $X = \{a,b,c,d\}$ and $Y = \{1,2,3,4\}$ [05]
 $A = \{(a,0)(b,0.8)(c,0.6)(d,1)\}$
 $B = \{(1,0.2),(2,1)(3,0.8)(4,0)\}$
 $C = \{(1,0)(2,0.4)(3,1)(4,0.8)\}$

Determine implication relations IF x is A THEN y is B ELSE y is C.

Q.3 Answer the following questions. [10]

- (a) You are given two jugs, a 5-gallon one and a 7-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 markings on it. How can you get exactly 1 gallons of water in one of the jugs? [05]
- (b) Translate below given sentences into formulas in predicate logic. [05]
1. Ronak likes all kinds of food
 2. Mangos are food.
 3. Anything that anyone eats and isn't killed by is food.
 4. Ramesh eats peanuts and is still alive.
 5. Twinkle eats everything Ramesh eats.

OR

- (b) [05]
1. All cats are animals.
 2. Minny is a cat.
 3. All animals will die.

Use resolution and prove: Minny will die.