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M.E. / M.TECH. DEGREE EXAMINATIONS, MAY 2019

Second Semester

MS18009 – MACHINE LEARNING*(Mechatronics)***(Regulation 2018)****Time: Three Hours****Maximum : 100 Marks**Answer **ALL** questions**PART A - (10 X 2 = 20 Marks)**

1. Write the steps involved in ANN.
2. How Q-learning is applied in decision making process?
3. State the need for quantisation.
4. Brief the role of matrix factorization.
5. Describe LVQ in brief.
6. Draw the architecture of PNN.
7. Differentiate fuzzy from crisp sets.
8. Explain briefly about at least one defuzzification method.
9. Write short notes on tabu search.
10. State the use of GA in machine learning.

PART B - (5 X16 = 80 Marks)

11. (a) Explain in detail about Naive Bayes Classifier. **(16)**
(OR)
(b) Name the types of regression and explain in details about any two. **(16)**
12. (a) Explain briefly about clustering fuzzy K & C means algorithm. **(16)**
(OR)
(b) (i) Explain briefly about the application of association rule learning. **(4)**
(ii) Explain in detail about Apriori Algorithm. **(12)**

13. (a) Explain BPN in detail and its application. (16)

(OR)

- (b) Brief about ART 2 with its applications. (16)

14. (a) Explain in detail about the need, application and architecture of adaptive fuzzy systems. (16)

(OR)

- (b) (i) If the fuzzy relationship of A & B is expressed by (8)

$$\begin{bmatrix} .3 & .5 & .8 \\ 0 & .7 & 1 \\ .4 & .6 & .5 \end{bmatrix}$$

and fuzzy B & C are expressed by

$$\begin{bmatrix} .9 & .5 & .7 & .7 \\ .3 & .2 & 0 & .9 \\ 1 & 0 & .5 & .5 \end{bmatrix}$$

then obtain the relationship between A & C.

- (ii) Discuss about how fuzzy is used in decision making. (8)

15. (a) (i) Explain briefly about ACO. (8)

- (ii) What is cross entropy method and how it is applied in machine learning? (8)

(OR)

- (b) (i) Explain briefly about swarm intelligence. (8)

- (ii) Write short notes on Reactive search optimization (RSO). (8)