Total No. of Questions : 8]

SEAT No. :

P735

[Total No. of Pages : 3

[5870]-1026

T.E. (Mechanical)

ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

(2019 Pattern) (Semester - II) (302049)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Use of calculator is allowed.***
4) ***Assume suitable data wherever necessary.***

Q1) a) Explain following terms in decision tree : **[6]**

i) entropy

ii) information gain

iii) Gini index

b) What is the difference between KNN and K means? Also state advantages and limitations of KNN and K means? **[5]**

c) How does the Bayes algorithm differ from decision trees? **[6]**

OR

Q2) a) What is Supeort Vector Machine? How does the SVM work? **[6]**

b) Define pruning. What are various types of pruning? Explain any one type of pruning. **[5]**

c) Differentiate between logistic regression and linear regression. **[6]**

Q3) a) What are different hyperparameter tuning algorithms? Elaborate using an example. **[8]**

b) Why data pre-procesing is required? Explain the techniques in pre-processing. **[6]**

c) State advantages and disadvantages of random forest. **[4]**

P.T.O.

OR

Q4) a) Explain the difference between training data and Testing data in a Dataset? How it is useful in a Machine Learning Model? **[8]**

b) Explain the following terms : **[6]**

i) Over fitted model

ii) Underfitted model

iii) Good model

c) Define following terms **[4]**

i) ACCURACY

ii) PRECISION

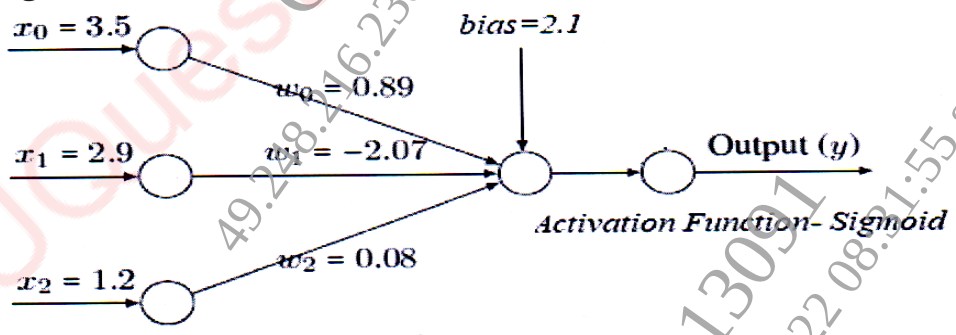
iii) RECALL

iv) F1SCORE

Q5) a) What do you understand from on policy and off policy algorithm in reinforcement learning? Explain SARSA algorithm for Reinforcement learning. **[8]**

b) Explain with neat diagrame quivalence of biological neuron and artificial neuron? **[6]**

c) Compute the output of the following neuron if the activation function is sigmoid. Assume bias to be 2.1. **[4]**



OR

Q6) a) What are different activation functions? Explain any one in details. **[8]**

b) Explain **[6]**

i) Positive Learning

ii) Negative Learning with respect to Reinforcement learning

c) What are applications of Reinforcement learning in Mechanical engineering? **[4]**

Q7) a) Write short note on use of AIML in material inspection. **[8]**

b) What are the advantages of using fault detection in Automobile cars. **[5]**

c) What are the different applications of AIML in health care. **[4]**

OR

Q8) a) Explain in detail different applications of AIML. **[8]**

b) Write short note on use of AIML in traffic control. **[5]**

c) What are the different types of sensors used in Human machine interactions? **[4]**

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