Total No. of Questions : 8]

SEAT No. :

P2336

[Total No. of Pages : 2

[5870] - 1220
T.E. (Computer Engineering)
HONOURS - DATA SCIENCE
Statistics & Machine Learning
(2015 Pattern) (Semester - II) (310503)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates :

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***

Q1) a) What is linear equation? What are the different method to solve system of linear equation. Explain with suitable example. **[9]**

b) What is the difference between the Jacobian, Hessian and the gradient function. Explain with example the applications of each function. **[9]**

OR

Q2) a) What is the difference between eigen value and eigen vector? How do you find the eigen value of a eigen vector? **[9]**

b) What is the significance of chain rule in calculus? Explain chain rule with suitable example. **[9]**

Q3) a) Explain different types of machine learning. Explain any one model of machine learning. How do you evaluate accuracy of a machine learning model? **[9]**

b) Explain how machine learning models can be applied for NETFLIX usage. **[8]**

OR

Q4) a) Explain Reinforcement Learning. Explain with suitable diagram the various stages of Reinforcement learning. **[9]**

b) Explain perspective and issues in machine learning. What are the various applications of machine learning? **[8]**

P.T.O.

Q5) a) What is Regression? How do you train a machine learning model? How is machine learning model evaluated? Explain in brief. **[9]**

b) Explain cost function and gradient descent terms with respect to linear Regression algorithm. What is the significance of Initialization of weights. **[9]**

OR

Q6) a) Explain how machine learning can be applied for Health Data Analytics? What are the benefits and limitations of machine learning for Data Aalytics. **[9]**

b) What are the different types of Regression model? Explain any one regression type in brief with suitable example. **[9]**

Q7) a) What is Decision tree? Write various steps for constructing a decision tree? How feature selection can be done using decision tree? **[8]**

b) Explain hypothesis space search in decision tree learning. Give suitable example. **[9]**

OR

Q8) a) Explain working of Naive Bayes Classifier? What are types of NB classifier. Explain in brief. **[8]**

b) What are advantages and disadvantages of NB model. What are various applications of NB model. Explain in brief. **[9]**

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