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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech I Semester End Examinations (Supplementary) - July, 2017

Regulation: IARE-R16

FOUNDATIONS OF DATA SCIENCES

(Computer Science and Engineering)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Discuss the stages of a data science project. [10M]
- (b) What is difference between data frame and a matrix in R? [4M]
2. (a) Write R script to check whether the given number is prime or not? [7M]
- (b) Discuss the issues to be considered in writing out a data frame to a text file. [7M]

UNIT – II

3. (a) What are the benefits of NoSQL over RDBMS. [4M]
- (b) State different ways to access different types of data files? Discuss the relevant packages and methods to access .csv, exl files. [10M]
4. (a) Distinguish simple and multiple regression analysis and its applications working with numerical and categorical data? [7M]
- (b) Describe the functions used in R for Correlation analysis and Covariance analysis with examples. [7M]

UNIT – III

5. (a) Discuss some common classification methods [7M]
- (b) Describe the process to create and evaluate the data model for the given data. To predict whether an email is a spam and should be delivered to junk folder. Suggest some data model. [7M]
6. (a) Discuss k-means algorithm with a suitable example. [6M]
- (b) Describe the limitations of the perception model. How to create and evaluate a data model? Describe with one case study. [8M]

UNIT – IV

7. (a) Give the basic structure of neural network and different types of ANN with real time examples. [7M]

- (b) Compare the learning algorithms with example in terms of problem nature, accuracy and error rate. [7M]
- 8. (a) State different types of learning algorithms with suitable example. Elaborate lazy learning algorithms [7M]
- (b) Discuss the difference of error in two hypotheses. Differentiate the MAP and ML hypothesis. [7M]

UNIT – V

- 9. (a) What is knitr? How to produce milestone documentation using knitr with an example for Mark-down? [7M]
- (b) How to write effective comments in R to generate effective documentation [7M]
- 10. (a) Generalize the graphical analysis in data analysis? List the various plots in R and explain in detail. [8M]
- (b) List out different plots with relevant package to explore and summarize the numerical text data in R. [6M]

