

Code: 17CSCS1T3

**I M.Tech-I Semester-Regular Examinations-February 2018**

**FUNDAMENTALS OF DATA SCIENCE  
(COMPUTER SCIENCE & ENGINEERING)**

Duration: 3 hours

Max Marks: 60

Answer the following questions.

1. Define the workflow, tools and approaches data scientists use to analyze data. 15 M

(OR)

2. a) What is Data Science? State its roles. 7 M

b) Walkthrough the data science workflow using a case study. 8 M

3. Take a sample dataset and analyze it using mean, median, mode, quartile, range, variance, standard deviation and correlation. 15 M

(OR)

4. a) Explain data visualization through scatter plots, scatter matrix, line graph, box plots and histograms. 7 M

b) Compare and contrast causation and correlation. 8 M

5. a) Explain data modeling and linear regression. 7 M  
b) Explain regularization, bias and error metrics of Fit model. 8 M

(OR)

6. a) Explain the evaluation metrics- confusion matrix and ROC curve. 8 M  
b) Explain Cross Validation and Mean Absolute Error. 7 M

7. a) What is Dimensionality reduction? Explain the different models that support it. 7 M  
b) Consider a data set and apply K-NN and Naïve classifier on it for classification. 8 M

(OR)

8. a) Explain how to work with Time Series Data? Explain Time Series Periodicity and Time intervals. 8 M  
b) Build the classification model using a dataset and evaluate. 7 M