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MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (INFORMATION TECHNOLOGY / COMPUTER AND COMMUNICATION ENGINEERING)

MAKEUP EXAMINATIONS, JUNE 2017

SUBJECT: PROGRAM ELECTIVE II- BIG DATA ANALYTICS (ICT 4005)

(REVISED CREDIT SYSTEM)

(20/06/2017)

TIME: 3 HOURS **MAX. MARKS: 50**

Instructions to candidates:

- Answer ALL the questions
- Missing data may be suitably assumed.

1A.	With a neat diagram explain Hadoop Architecture. What are the characteristics of Hadoop which make it suitable for Big data Analytics?	5
1B.	Consider the file example.csv containing data playerid, yearID, stint,CountryID,runs. Write the pig script to get the player with maximum runs in each country.	3
1C.	What are the properties of NoSql?	2
2A.	Give an example of supervised learning. Explain the working of linear regression with an example. Explain the objective of Ordinary Least Square(OLS) and explain how is it computed.	5
2B.	What properties are exhibited by Big data? Explain each one with an example.	3
2C.	What type of errors may be resulted with hypothesis testing? Explain each one with an example. Which one is considered as critical in hypothesis testing?	2
3A.	Explain typical analytic architecture with a neat diagram.	5
3B.	Cluster the following data using k-means algorithm using k=2 and choosing first and fifth data points as initial cluster centroids. (1,1), (1.5,2), (3,4), (5,7),(3.5,5),(4.5,5),(3.5,4.5).	3
3C.	What R commands are used to remove null values from a dataset?	2
4A.	What are the different hypothesis testing applicable for checking if the two distributions have difference of means or not? Suppose the National Transportation Safety Board (NTSB) wants to examine the safety of compact cars, midsize cars, and full-size cars. It collects a sample for each of the treatments (cars types) as shown in Table Q.4A. Apply ANOVA test to test whether the mean pressure applied to the drivers head during a crash test is equal for each types of car. Use $\alpha = 5\%$.	5