Duration: 3Hrs   **[Max Marks: 80]**

N.B.: (1) Attempt any four questions
    (2) All questions carry equal marks
    (3) Assume suitable data, if required and state it clearly

Q1   A   Explain any five data centric consistency models with example data stores.   **[10]**
     B   Explain different load estimation policies and process transfer policies used in load   **[10]**
        balancing approach of distributed system.

Q2   A   What is Remote Procedure Call? Describe the working of RPC in detail.   **[10]**
     B   Explain Bully election algorithm.   **[10]**

Q3   A   Discuss design and implementation issues of distributed shared memory.   **[10]**
     B   What are desirable features of a good DFS?   **[10]**

Q4   A   Discuss various issues and goals related to design of distributed system.   **[10]**
     B   What is distributed mutual exclusion? Explain how Suzuki-Kasami's broadcast   **[10]**
        algorithm achieves distributed mutual exclusion.

Q5   A   What is need of code migration? Explain the role of process to resource and   **[10]**
        resource to machine binding in code migration.
     B   Explain various file caching schemes.   **[10]**

Q6   A   What is physical clock? Explain any one physical clock synchronization method.   **[10]**
     B   What is fault tolerance? Describe different types of failure models.   **[10]**

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Total Marks 80

(3 Hours)

NB
1) Question **number 1** is compulsory
2) Attempt **any three** out of the remaining **five questions**.
3) Assume suitable data if **necessary** and justify the assumptions.

Q1		Answer the following	20
	a)	What is the difference between data science and data analytics?	
	b)	What are Type I and Type –II errors? Give examples.	
	c)	Brief about SMOTE.	
	d)	What do you mean by Time Series Decomposition?	
Q2	a)	Describe the terms: cross-validation, K-fold cross-validation, leave-1 out and Bootstrapping.	10
	b)	Explain the data science process in detail.	10
Q3	a)	What are outliers? Explain different outlier detection methods.	10
	b)	Calculate the coefficient of correlation for the following data with Karl Pearson's method.	10

X	10	20	30	40	50	60	70	80	90	100
Y	2	4	8	5	10	15	14	20	22	50

Q4	a)	Find Bowley's coefficient of skewness of the following series.	10

Size	4	4.5	5	5.5	6	6.5	7	7.5	8
F	10	18	22	25	40	15	10	8	7

	b)	Explain the Auto Regressive Integrated Moving Average (ARIMA) model in detail.	10
Q5	a)	Brief about ANOVA and its types. How it is different from a t-test?	10
	b)	What is Hypothesis testing? Explain the steps involved in Hypothesis testing with an example.	10
Q6		**Write a note on any TWO :**	20
		i. Data Visualization techniques	
		ii. Univariate Exploration and Multivariate Exploration	
		iii. House price Prediction or Fraud Detection	

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**Duration: - 3 Hours**   **Marks: 80 Marks**

N.B. : (1) Question No 1 is Compulsory.
       (2) Attempt any three questions out of the remaining five.
       (3) All questions carry equal marks.
       (4) Assume suitable data, if required and state it clearly.

Q.1			20
	a.	What is predictive analytics?	5
	b.	What is text analytics, and why it is useful?	5
	c.	What is search engine analytics?	5
	d.	Explain the steps needed to formulate a social media strategy.	5

Q.2   a.   Differentiate among social media, Web 2.0, and social network sites.   10
How degree distribution is plotted for the graph? Show degree distribution of the
following graph.
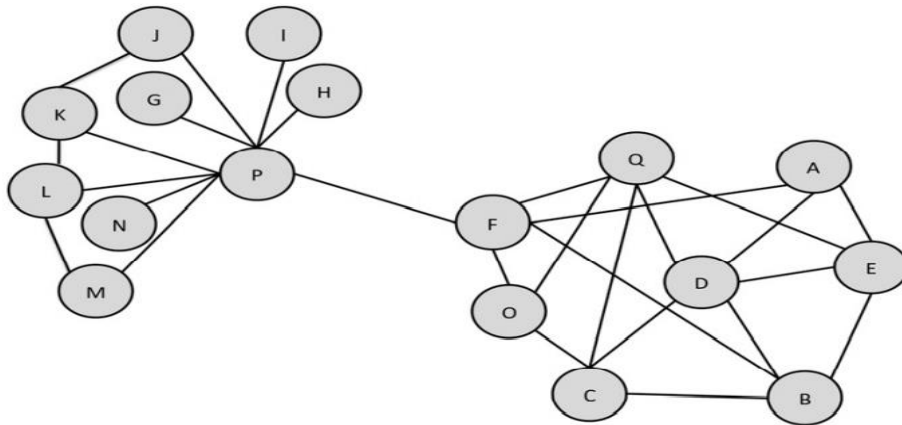
      b.   10

Q.3   a.   Explain Social Media Action Analytics, Common Social Media Actions and
            Actions Analytics Tools.   10

      b.   Explain tools of Hyperlink Analytics.   10

Q.4   a.   List all the location analytics tools and also explain working of every tool.   10
      b.   What is social media risk? Explain the four steps in social media risk management   10

Q.5   a.   Discuss various privacy attributes of Social Media Sites.   10
      b.   What is Location analytics? Explain its significance in context of social media   10
            analytics?

Q.6   Write short notes on any two   20
      a.   Centralization in social media analytics with example.
      b.   Challenges of social media analytics.
      c.   Automated, Traditional and Social recommender systems.
      d.   Social Media Risks Management Framework.

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(Time: 3 Hours)   **(Total Marks: 80)**

Note:
1. Question No.1 is compulsory
2. Attempt any **three** out of the remaining **Five** questions.
3. Assume suitable data if necessary.

Q. 1.	Answer **any FOUR** of the following:	(20)
(a)	Define Environmental Objective as per ISO 14001	
(b)	What are the challenges in implementation of ISO 14000 standards?	
(c)	Unawareness or ignorance of environmental protection will lead to detrimental consequence comment. Justify the statement.	
(d)	Write short note on Global Warming as a Global Environmental Concern.	
(e)	Discuss on Applications of Environmental Management System..	
(f)	Discuss the key success factors for applied to almost all the operation for EMS implementation.	
Q. 2.	(a) What is Water (P & CP) Act? Give its objectives.	(10)
	(b) Discuss in short about Environment Protection Act.	(10)
Q. 3.	(a) Discuss roles of Government as regulatory agency for Environmental Management. Enlist 3 points.	(10)
	(b) Explain limiting factors and carrying capacity as related to Ecosystems.	(10)
Q. 4.	(a) What is Total Quality Environment Management Concept?	(10)
	(b) How is CSR related to Environmental Management? Explain with an example.	(10)
Q. 5.	(a) Elaborate the ISO 14001 EMS Model for Municipalities.	(10)
	(b) Discuss in short about EMS certification.	(10)
Q. 6.	Answer the following	(20)
	(a) Discuss on Wildlife protection Act.	
	(b) What are the guidelines to conduct and Environmental audit?	

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