

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

May-June 2025		
Program: B. Tech. Scheme II B		
Regular Examination Semester: VIII		
Course Code: EXDLC8034	Course Name: Fundamentals of Data Science	
Date of Exam: 23/05/2025	Duration: 02.5 Hours	Max. Marks: 60

Instructions:
(1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	State Structure of Python code with example and compare Python with JavaScript, Visual Basics, Perl		1	U
b)	Illustrates Data cleansing workflow with a suitable example		3	U
c)	Explain Group by functions in Pandas. Illustrate with suitable examples		2	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Explain the following operations: Roll-up operation, drill-down operation, Slice operation, and Dice operation.		4	AP
b)	State and explain Typical Requirements Of Clustering In Data Mining		5	AP
c)	Explain the ARIMA model components.		6	AP
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Explain Python's indentation rules with practical implications in debugging		1	U
b)	Perform the following operations by constructing a suitable dataset (Show the input and output of each step)		2	U
	i. Sorting			
	ii. Indexing			
	iii. Finding Statistical Values			
	iv. Reshaping			

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- c) Illustrate handling of duplicate data and missing data in data validation with a suitable example 3 U
- Q.4 Solve any two questions out of three. (10 marks each) 20
- a) List the advantages and disadvantages of top-down and bottom-up approaches for building a data warehouse. 4 AP
- b) What is classification? Explain classification by decision tree induction with a suitable example. 5 AP
- c) Compare ARX, ARMAX, and ARIMA models with scenarios. 6 AP
