

# CBCS SCHEME

MBABA313

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## Third Semester MBA Degree Examination, Dec.2025/Jan.2026 Introduction to Python Data and Control Systems

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FOUR full questions from Q.No.1 to Q.No.7.  
2. Question No. 8 is compulsory.  
3. M : Marks , L: Bloom's level , C: Course outcomes.*

			M	L	C
<b>Q.1</b>	a.	Define variables and data types.	3	L1	CO1
	b.	Explain conditional statements with syntax.	7	L2	CO1
	c.	Write a program to check if a number is prime.	10	L3	CO1
<b>Q.2</b>	a.	What is a function?	3	L1	CO1
	b.	Distinguish between lists and tuples.	7	L2	CO1
	c.	Write a function to return highest-priced item from a dictionary.	10	L3	CO1
<b>Q.3</b>	a.	Define data cleaning.	3	L1	CO2
	b.	Explain handling of missing values.	7	L2	CO2
	c.	Describe the steps in Python required to load a CSV file containing monthly sales data and generate a bar chart to visualize the sales for each month.	10	L3	CO2
<b>Q.4</b>	a.	What is NumPy?	3	L1	CO2
	b.	Explain aggregation in Pandas.	7	L2	CO2
	c.	Calculate mean, median & standard deviation in Python.	10	L4	CO2
<b>Q.5</b>	a.	What is a class?	3	L1	CO1
	b.	Explain inheritance with an example.	7	L2	CO1
	c.	Write a Python program that accepts two numbers from the user and uses a try-except block to handle a division by zero error, ensuring that the program does not crash when the denominator is zero.	10	L3	CO4

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Q.6	a.	Define control system.	3	L1	CO3
	b.	Compare open-loop and closed-loop control systems by explaining how each system operates and highlighting the key differences in terms of feedback and accuracy.	7	L2	CO3
	c.	Describe role of sensors, actuators & controllers.	10	L3	CO3
Q.7	a.	What is feedback?	3	L1	CO3
	b.	Explain how accuracy is achieved in a closed-loop control system, focusing on the role of continuous monitoring and corrective adjustments.	7	L2	CO3
	c.	State the standard PID controller formula used in closed-loop control systems and explain the function of each component in adjusting the system output.	10	L3	CO3
Q.8	<b>CASE STUDY : (Compulsory)</b>				
	<p>Modern organisations increasingly rely on automated decision systems for monitoring data trends, predicting outcomes, and regulating operational parameters in real time. Explain how Python can be used to integrate data acquisition, processing, and automatic control adjustments within such systems. In your answer, discuss:</p> <p><b>Questions :</b></p>				
	a.	How Python handles data collection and cleaning?	3	L5	CO4
	b.	How processed data supports decision and control logic?	7	L5	CO4
	c.	How the control output is implemented to maintain system targets?	10	L5	CO4

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