Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 10-10-2025 **Time:** 02.00pm to 03.30pm

School: SOE	**Program:** All Programs	
Course Code: ECE3807	**Course Name:** Introduction to Data Analytics	
Semester: III/V/VII	**Max Marks**: 50	**Weightage:** 25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**26**	**24**			

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Name the three data types classified according to the structure of the data.	**2 Marks**	**L1**	**CO1**
2	Give an example for predictive analysis	**2 Marks**	**L1**	**CO1**
3	List the steps used to manipulate the data	**2 Marks**	**L1**	**CO1**
4	Why is pandas preferred over numpy?	**2 Marks**	**L1**	**CO2**
5	Write the syntax to generate a 3×4 array consisting of all zeros using numpy library.	**2 Marks**	**L1**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Write a python program to collect the details of five students and display the details of the students based on the search using ID number. Use two functions – students_details() and search_students(). The function students_details() must get information on ID	**10 Marks**	**L2**	**CO2**

		number, name, age and marks for Physics, Chemistry, Mathematics, Biology and Computer Science, and return the students details. The function search_students() must search the student's information based on their ID number. If wrong ID number is entered, then the program must display 'No record found'			
	b.	<table><tr><th>Student Name</th><th>Physics</th><th>Chemistry</th><th>Maths</th></tr><tr><td>Deepa</td><td>79</td><td>50</td><td>88</td></tr><tr><td>Amit</td><td>38</td><td>60</td><td>43</td></tr><tr><td>Nisha</td><td>59</td><td>55</td><td>55</td></tr><tr><td>Suresh</td><td>24</td><td>28</td><td>21</td></tr><tr><td>Pooja</td><td>64</td><td>85</td><td>87</td></tr><tr><td>Varun</td><td>74</td><td>45</td><td>77</td></tr><tr><td>Neha</td><td>49</td><td>52</td><td>97</td></tr><tr><td>Sanjay</td><td>40</td><td>33</td><td>66</td></tr><tr><td>Divya</td><td>30</td><td>51</td><td>60.5</td></tr><tr><td>Harish</td><td>38</td><td>71</td><td>66</td></tr><tr><td>Shreya</td><td>92</td><td>72</td><td>49</td></tr><tr><td>Ravi</td><td>29</td><td>12</td><td>14</td></tr><tr><td>Anjali</td><td>58</td><td>34</td><td>41</td></tr><tr><td>Geeta</td><td>93</td><td>70</td><td>43</td></tr></table> In the cleaned dataset, find the strong and weak subject for each student. Draw the histogram visualization and write any one descriptive statement	**10 Marks**	**L2**	**CO2**
		Or			
7.	**a.**	Write a python program to design a simple calculator for multiplication and division. Use two functions – get_data() and calculator(). The function get_data() must collect the numbers that need to be calculated. The program must collect data until the user enters the character 'q' and return the collected data. The function calculator() must calculate the product and quotient and return the results. The results must be printed using the main program.	**10 Marks**	**L2**	**CO2**
	b.	<table><tr><td>Student Name</td><td>Physics</td><td>Chemistry</td><td>Maths</td></tr><tr><td>Anita</td><td>41</td><td>63</td><td>30</td></tr><tr><td>Rahul</td><td>93</td><td>-25</td><td>55</td></tr><tr><td>Meena</td><td></td><td>43</td><td></td></tr><tr><td>arjun</td><td>24</td><td>96</td><td>TWO ZERO</td></tr></table>	**10 Marks**	**L2**	**CO2**

		Kavya	34	40	67			
		Vikram	93		34			
		priya	SEVEN ONE	25	89			
		Rohan	150	37	80			
		Anitha	21	63	40			
		Kavya	34	40	67			
		Using the above data set, find the additional features like total marks and percentage after cleaning the data.						

8.	**a.**	Describe the following numpy functions with an example. (i) arr.shape, (ii) arr.size, (iii) arr.ndim, (iv) arr.dtype, (v) arr.itemsize	**10 Marks**	**L2**	**CO2**
	b.	Write a code snippet for the following using numpy. Use a function student_data(). The function should collect the following information (i) Number of students, (ii) ID number of each student, (iii) Name of each student, and (iv) Age of each student. The function must return this data to the main program.	**10 Marks**	**L2**	**CO2**
Or					
9.	**a.**	Describe both the ways used to create DataFrame using pandas. Also, describe the method used to set the first column as the index for the DataFrame.	**10 Marks**	**L2**	**CO2**
	b.	Write a code snippet for the following using numpy. Assume that the data set is already collected and returned as the variable final_mark_list. Use two functions pass_all() and fail_any() to identify the students who passed in all the subjects and failed in any one of the subjects. The functions must return this data to the main program and the result must be printed using the main program.	**10 Marks**	**L2**	**CO2**