

ROLL NO. _____

ENROLLMENT NO. _____

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, SCHOOL OF ENGINEERING
SCIENCES & TECHNOLOGY, JAMIA HAMDARD**

SUUPLEMENTARY EXAMINATION 2023

BTCSEAI DE23

Departmental Elective – II Data Science

TIME: 3 HRS**MAXIMUM MARKS: 75**

Note: Do not write anything on paper except Roll No. & Enrollment No. Use of mobile phone is not allowed. Please follow proper numbering while answering the questions Proper steps are required to be specified for all questions

SECTION A

*All questions of Section A are compulsory (7*5)*

S.NO	QUESTIONS	MARKS	CO	BL																		
Q1.	The heights of mothers and daughters are given in the following table. From the two tables of regression estimate average height of daughter when the height of the mother is 64.5 inches: <table><tr><td>Height of mother</td><td>62</td><td>63</td><td>64</td><td>64</td><td>65</td><td>66</td><td>68</td><td>70</td></tr><tr><td>Height of daughter</td><td>64</td><td>65</td><td>61</td><td>69</td><td>67</td><td>68</td><td>71</td><td>65</td></tr></table>	Height of mother	62	63	64	64	65	66	68	70	Height of daughter	64	65	61	69	67	68	71	65	5	CO2	L3
Height of mother	62	63	64	64	65	66	68	70														
Height of daughter	64	65	61	69	67	68	71	65														
Q2.	Explain the role of clustering in data science and write about types of clustering in detail?	5	CO3	L2																		
Q3.	You're a Data Scientist / Business Analyst working for a new eCommerce company called Piac Co. (similar to Filpkart) and you've been asked to prepare a writeup for the Vice President of Sales and the Vice President of Operations that summarizes sales and operations thus far. The summary should include (at a minimum) a summary of current state the business, current customer satisfaction, and a proposal of 2-3 areas where the company can improve.	5	CO2	L1																		
Q4.	Utilizing data science and analytics case study problem solving approach answer the following: How would you improve bank's existing state-of-the-art credit scoring of borrowers?	5	CO1	L4																		
Q5.	A box contains 10 blue balls, 15 green balls and x yellow balls. If the probability of selecting a yellow ball is $\frac{2}{3}$, what is the total number of balls in the box?	5	C04	L5																		
Q6.	Given below the premises, specify whether the Conclusion "The Bronze watch is same size as Gold Watch" is true or not The Large Silver Watch states the time as 15:50. The Small Silver Watch displays the same time as the Gold Watch. The Bronze Watch is small in size. The Gold Watch is ten minutes slower than the Large Silver Watch. The Bronze Watch is five minutes faster than the Small Silver Watch.	5	CO5	L6																		
Q7.	How would you measure the success of Instagram stories?	5	CO4	L3																		

SECTION B

Answer any 4 questions in Section B (4*10)

S.NO	QUESTIONS	MARKS	CO	BL																																																							
Q1.	Use K-Means Algorithm to create two clusters-	10	CO3	L2																																																							
Q2.	A company manufactures car batteries with an average life span of 2 or more years. An engineer believes this value to be less. Using 9 samples he measures the average life span to be 1.7 years with a standard deviation of 0.13 (a) State the null and alternative hypothesis. (b) At a 98% confidence level, is there enough evidence to discard the null hypothesis.	10	CO3	L3																																																							
Q3.	Given all the previous patients I've seen (below are their symptoms and diagnosis)... <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>chills</th><th>runny nose</th><th>headache</th><th>fever</th><th>flu?</th></tr> </thead> <tbody> <tr><td>Y</td><td>N</td><td>Mild</td><td>Y</td><td>N</td></tr> <tr><td>Y</td><td>Y</td><td>No</td><td>N</td><td>Y</td></tr> <tr><td>Y</td><td>N</td><td>Strong</td><td>Y</td><td>Y</td></tr> <tr><td>N</td><td>Y</td><td>Mild</td><td>Y</td><td>Y</td></tr> <tr><td>N</td><td>N</td><td>No</td><td>N</td><td>N</td></tr> <tr><td>N</td><td>Y</td><td>Strong</td><td>Y</td><td>Y</td></tr> <tr><td>N</td><td>Y</td><td>Strong</td><td>N</td><td>N</td></tr> <tr><td>Y</td><td>Y</td><td>Mild</td><td>Y</td><td>Y</td></tr> </tbody> </table> + Do I believe that a patient with the following symptoms has the flu? <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>chills</th><th>runny nose</th><th>headache</th><th>fever</th><th>flu?</th></tr> </thead> <tbody> <tr> <td>Y</td><td>N</td><td>Mild</td><td>Y</td><td>?</td></tr> </tbody> </table>	chills	runny nose	headache	fever	flu?	Y	N	Mild	Y	N	Y	Y	No	N	Y	Y	N	Strong	Y	Y	N	Y	Mild	Y	Y	N	N	No	N	N	N	Y	Strong	Y	Y	N	Y	Strong	N	N	Y	Y	Mild	Y	Y	chills	runny nose	headache	fever	flu?	Y	N	Mild	Y	?	10	CO1	L1
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Q4.	Write about purpose of confusion matrix with any example?	10	CO4	L4																																																							
Q5.	Through an example specify in detail conceptual framework of Data Analysis problems.	10	CO5	L5																																																							
Q6.	Through query analysis disprove the hypothesis: Data scientists who switch less jobs end up getting promoted faster.	10	CO2	L6																																																							

BLOOMS TAXANOMY LEVELS (BL)

1-REMEMBERING, 2-UNDERSTANDING, 3-APPLYING, 4-ANALYSING,
5-EVALUATING, 6-CREATING