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PRESIDENCY UNIVERSITY BENGALURU

 SCHOOL INFORMATION SCIENCE

 MAKEUP EXAMINATION – JULY 2024

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| **Semester :I** | **Date :08.07.2024** |
| **Course Code :CSA1003** | **Time :9.30 am to 12.30pm** |
| **Course Name :Fundamentals of Data Science** | **Max Marks :100** |
| **Program :BCA** | **Weightage :50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** |
|  **ANSWER ANY 5 QUESTIONS 5Q X 2M=10M** |
| 1 | Define Data Science | (CO 1) | [Knowledge] |
|  |
| 2 | What is meant by Data Mining? | (CO 1) | [Knowledge] |
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| 3 | What is the use of Pie Chart? | (CO 2) | [Knowledge] |
|  |
| 4 | Identify the mean of 1st 10 Odd integers | (CO 2) | [Knowledge] |
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| 5 | Define Correlation Coefficient and write the formulae to find r. | (CO 3) | [Knowledge] |
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| 6 | What is the use of shuffle and sort technique in map reduce process | (CO 4) | [Knowledge] |
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| 7 | Write the formulae to find Euclidean Distance | (CO 4) | [Knowledge] |
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| **PART B** |
|  **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** |
| 8 | Illustrate Key Aspects of Data Science Process | (CO 1) | [Comprehension] |
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| 9 | Explain statistical descriptions of Data[Mean, Median, Mode, Variance, Standard Deviation] | (CO 1) | [Comprehension] |
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| 10 | Demonstrate Different types of Charts with Example. | (CO 2) | [Comprehension] |
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| 11 | 1. What is meant by Percentile? Give Example
2. A garden contains 39 plants. The following plants were chosen at random, and their heights were recorded in cm: 38, 51, 46, 79, and 57. Calculate their heights’ standard deviation.
 | (CO 2) | [Comprehension] |
|  |
| 12 |

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| Solve the prediction to obtain mean, variance and standard deviation for the following observation and compare which one is best. |
| x                                     y |
| 30                                    40  |
| 60                                    50 |
| 90                                    70 |
| 85                                    61 |
| 72                                    87 |
| 63                                   79 |
| 45                                  12 |
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| 13.5                              16 |
| 14                                  18 |

 | (CO 3) | [Comprehension] |
|  |
| 13 | Compare Supervised Learning with Unsupervised Learning | (CO 4) | [Comprehension] |
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| 14 | Explain KNN Algorithm in detail. | (CO 4) | [Comprehension] |
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| **PART C** |
|  **ANSWER ANY 2 QUESTIONS 2Q X 20M=40M** |
| 14 | Explain different types of facets[Types of V’s] of data | (CO1) | [Application] |
|  |
| 15 | Let us assume that you start up a company that has developed a drug that is supposed to increase IQ. You know that the standard deviation of IQ in the general population is 15. You test your drug on 36 patients and obtain a mean IQ of 97.65. Using an alpha value of 0.05, is this IQ signifcantly different than the population mean of 100? Z Area between mean and Z Area beyond Z…. ……. ………….1.94 0.4738 0.02621.95 0.4744 0.02561.96 0.475 0.0251.97 0.4756 0.02441.98 0.4761 0.0239…… ……….. ………. Z Area between mean and Z Area beyond z…. ….. …..-0.96 -0.3315 0.8315-0.95 -0.3289 0.8289-0.94 -0.3264 0.8264-0.93 -0.3238 0.8238-0.92 -0.3212 0.8212 | (CO2) | [Application] |
|  |
| 16 | Perform KNN Algorithm on following data. Predict the class for New Entry. [Where K = 3]

| **BRIGHTNESS** | **SATURATION** | **CLASS** |
| --- | --- | --- |
| 20 | 35 | ? |

| **BRIGHTNESS** | **SATURATION** | **CLASS** |
| --- | --- | --- |
| 40 | 20 | Red |
| 50 | 50 | Blue |
| 60 | 90 | Blue |
| 10 | 25 | Red |
| 70 | 70 | Blue |
| 60 | 10 | Red |
| 25 | 80 | Blue |

 | (CO4) | [Application] |
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