Roll No										

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023

Semester : Semester III - 2022
Course Code : CSE2027
Course Name : Sem III - CSE2027 - Fundamentals of Data Analytics
Program : B. TECH

Date : 2-NOV-2023
Time : 2:00PM - 3:30PM
Max Marks : 50
Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS **(5 X 2 = 10M)**

1. What is Data Analytics? Mention different types of Data Analytics. (CO1) [Knowledge]
2. What is called "Removing of Variables" in the Data Analysis? (CO1) [Knowledge]
3. Mention any 5 Data Analysis tools? (CO1) [Knowledge]
4. Describe the different types of Sampling Techniques. (CO2) [Knowledge]
5. State any two uses of Data Analytics in real world.

PART B

ANSWER ALL THE QUESTIONS **(4 X 5 = 20M)**

6. The level of calcium in the blood of healthy, young adults varies with a mean of 9.5 mg per deciliter and a SD of 0.4. A clinic in rural Illinois measures the blood calcium level of 180 healthy pregnant women and finds x = 9.57mg. Is this an indication that the mean calcium level in this population differs from 9.5mg? Take 5% level of significance.

Use the Standard tables values for Z-Test

Standard table values for Z Test:

Level of significance α	Two tailed test	Right tailed test	Left tailed test
90% confidence or α = 10% = 0.1	z = 1.645	z = 1.28	z = – 1.28
95% confidence or α = 5% = 0.05	z = 1.96	z = 1.645	z = – 1.645
99% confidence or α = 1% = 0.01	z = 2.58	z = 2.33	z = – 2.33

(CO1) [Comprehension]

7. Calculate the Central Tendency for Mean, Median, Mode, Variance and Standard Deviation for the following table.

Sample of 10 observations

2	3	5	9	21	93	99	99	99	102

(CO1) [Comprehension]

8. Explain any 5 V's of Big Data in detail?

(CO2) [Comprehension]

9. The table below relates the weights and heights of a group of individuals participating in an observational study.

Weight/Height	Tall	Medium	Short	Totals
Obese	18	28	14	
Normal	20	51	28	
Underweight	12	25	9	
Totals				

Answer the following questions

a) Complete the contingency table.

b) Find the probability that a randomly chosen individual from this group is Tall

c) Find the probability that a randomly chosen individual from this group is Tall given that the individual is Obese

d) Find the probability that a randomly chosen individual from this group is Obese given that the individual is Tall

e) Are the events Obese and Tall Independant?

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION **(1 X 20 = 20M)**

10. Raju Restaurant near the railway station at Falna has been having average sales of 500 tea cups per day. Because of the development of bus stand nearby, it expects to increase its sales. During the first 12 days after the start of the bus stand, the daily sales were as under:

550, 570, 490, 615, 505, 580, 570, 460, 600, 580, 530, 526

On the basis of this sample information, can one conclude that Raju Restaurant's sales have increased?

Use a) 5% b)1% level of significance.

Sample t-test table given below:-

df	0.1	0.05	0.025	0.02	0.01	0.005
1	3.078	6.314	12.706	15.895	31.821	63.657
2	1.886	2.920	4.303	4.849	6.965	9.925
3	1.638	2.353	3.182	3.482	4.541	5.841
4	1.533	2.132	2.776	2.999	3.747	4.604
5	1.476	2.015	2.571	2.757	3.365	4.032
6	1.440	1.943	2.447	2.612	3.143	3.707
7	1.415	1.895	2.365	2.517	2.998	3.499
8	1.397	1.860	2.306	2.449	2.896	3.355
9	1.383	1.833	2.262	2.398	2.821	3.250
10	1.372	1.812	2.228	2.359	2.764	3.169
11	1.363	1.796	2.201	2.328	2.718	3.106
12	1.356	1.782	2.179	2.303	2.681	3.055
13	1.350	1.771	2.160	2.282	2.650	3.012
14	1.345	1.761	2.145	2.264	2.624	2.977
15	1.341	1.753	2.131	2.249	2.602	2.947
16	1.337	1.746	2.120	2.235	2.583	2.921
17	1.333	1.740	2.110	2.224	2.567	2.898
18	1.330	1.734	2.101	2.214	2.552	2.878
19	1.328	1.729	2.093	2.205	2.539	2.861
20	1.325	1.725	2.086	2.197	2.528	2.845

(CO2) [Application]