

TILAK MAHARASHTRA VIDYAPEETH, PUNE
MASTER OF SCIENCE (DATA SCIENCE) (768)
EXAMINATION : JANUARY- 2026
SEMESTER - I
Sub : Statistics Essential for Data Science (76825 -103)

Date : 8/01/2026

Total Marks : 60

Time: 10.00 am To 12.30 pm

Instruction:

1. All questions are compulsory unless and otherwise stated.
2. Bold figures to the right of every question are the maximum marks for that question.
3. Candidates are advised to attempt questions in order.
4. Answers written illegibly are likely to be marked zero.
5. Use of scientific calculators, Log tables, Mollier Charts is allowed.
6. Draw neat and labelled diagram wherever necessary.

Q. 1. Answer the following in 2-3 lines. (Any 5) (10)

1. Define qualitative and quantitative data type.
2. Explain different types of scales of measurement.
3. Define variance and standard deviation also give formulae.
4. Define statistic and parameter.
5. State central limit theorem
6. Define null and alternative hypothesis
7. Define mode and find mode for following data :
32,45,67,89,65,43,21,32,33,34,32,32

Q. 2. Answer the following in short. (Any 4) (20)

Calculate mean, median and mode for following data :

1.	Marks	0-20	20-40	40-60	60-80	80-100
	No. of students	5	12	32	40	11

Draw frequency polygon and frequency curve for following data :

2.	Monthly house rent in thousands	10-12	12-14	14-16	16-18	18-20	20-22
	No. of families	6	16	24	20	10	4

3. Explain skewness and kurtosis in briefly.
4. Explain computation procedure of median ,mode in terms of continuous frequency distribution

Explain partition values .Obtain Q1,Q2,Q3 ,D6 and P45 for following data :

5.	Monthly Salary (Rs)	1400-1600	1600-1800	1800-2000	2000-2200	2200-2400	2400-2600
	Frequency	12	30	55	40	35	28

6. Explain paired t-test .

Q. 3. Answer the following in detail. (Any 3)

(30)

1. Explain confusion metrics specificity, sensitivity ,F1-score,precision,recall,Information gain ,Entropy.
2. Explain simple linear regression and obtain regression line Y on X.
3. Explain covariance ,correlation also explain types of correlation also find correlation for following data :

Export	10	11	14	14	20	22	16	12	15	13
Import	12	14	15	16	21	26	21	15	16	14

4. Explain logistic regression for binary classification.
5. Explain difference between parametric and non-parametric test also explain briefly Krushal-Wallis test and Mann-Whitney test.
