



RAN-2508000603011001

B.Com. (Data Science) (Sem. III) Examination November - 2025

Statistical Inference (New) (Major)

સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book

Seat No.:

Student's Signature

Q.1. Answer the following (Any Five) [10]

- 1) Explain Type 1 Error
- 2) The correlation coefficient of 27 pairs is 0.5. Find the value of t-statistics.
- 3) Write formula of S.E. for Significance test of proportion of success in large sample
- 4) Explain confidence interval?
- 5) What is small sample test?
- 6) Explain Critical Region
- 7) A sample of size 64 was drawn and sample mean was found to be 64. Find statistics to test whether the sample could have come from normal population with mean 65 and variance 64?

Q.2. Last 10 years of two companies has been given in following table [14]

Company A	10	11	12	13	14	16	18	12	10	14
Company B	10	10	11	9	13	12	15	12	11	7

- a) test that is variance of profit in both companies equal?
- b) test that is there any significant difference in mean of profit in both companies?

OR

Q.2. a) 600 student's reviews on Gujarati movie "Fakt Purusho Mate" are given in following table, test that is there any association between gender and their review on movie? [07]

	Like Movie	Dislike Movie
Boys	320	50
Girls	200	30

- b) A simple random sample of 10 basketball players are selected and measure each of their max vertical jumps. Then, each player is trained through one month training program and then measure their max vertical jump again at the end of the month, test that the training program actually had an effect on max vertical jump. [07]

Before Training	20	21	19	23	20	21	19	17	23	16
After Training	24	23	19	22	21	23	21	20	23	20

- 1) In a certain factory, there are two independent processes for manufacturing the same item. The average weight in a sample of 500 items produced from one process is found to be 20 gms. with a standard deviation of 10 gms, while from other process average and standard deviation are 30 and 11 respectively in a sample of 600 items. Test the variability of both process at 5% and 1% significant level.
- 2) The monthly income of a sample of 1000 laborers is Rs. 600 and SD is Rs. 50 Rs. Find the 95% & 95.45% confidence interval for the monthly income of the population.

OR

- Q.3.** a) In a random sample of 400 houses in a city, 350 houses have colour TVs. Find the 99% & 98.27% confidence interval for the households that have Colour TV in that city. **[07]**
- b) If proportion of two population are 0.35 and 0.3 respectively. We draw two sample sizes of 800 and 700 respectively. Test the significance of two population proportion at 5%. **[07]**

- Q.4.** **Write short notes: (Any Three)** **[12]**
- 1) Explain Null and Alternative Hypothesis
 - 2) Explain Goodness of fit
 - 3) Explain Level of Significance and Power of Test
 - 4) Explain significance test of correlation coefficient in large sample test
 - 5) Explain significance test of one small sample mean
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