

RAN-2508000603011001**B. Com. (Data Sci.) (NCF-NEP) (Sem.-III) Examination March - 2026****STATISTICAL INFERENCE (NEW) MAJOR****[Total Marks: 50****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 Level of Significance
2. If $S^2 = 0.9167$ and $\bar{x} = 1.75$ for 4 observations selected at random from a normal population, find t statistics to test the hypothesis “the population mean is 2”
3. The correlation coefficient for 100 pair observations is 0.5. Find Standard error to test “ $\rho = 0$ ”
4. If 1,2, 3,6, and 5 are the value of $\frac{(fo - fe)^2}{fe}$ then find χ^2
5. What is confidence interval?
6. Explain Alternative Hypothesis
7. What is large sample test?

Q.2. The following information shows the body fat (In percentage) in a group of Men and a group of women.**14**

Men	14	11	20	12	14	16	18	25	16	24
Women	22	17	22	18	20	23	12	22	24	

- a. test that is variance of body fat in both groups equal?
- b. test that is there any significant difference in mean of body fat?

OR**Q.2. a. A sample of 900 people is offered two flavours of ice cream and asked whether they like the taste of each, test that the people like both flavours of ice cream or not****07**

	Like chocolate	Dislike chocolate
Like vanilla	350	250
Dislike vanilla	200	100

- b. 10 students were given a test. They were given a month's further coaching and a second test of same standard was held. Do the marks give evidence that the students have been benefited by extra coaching?

07

Before extra coaching	75	60	65	70	55	70	80	95	100	90
After extra coaching	80	65	65	70	60	80	95	95	100	100

- Q.3. Answer the following.** **14**
1. A random sample of 1000 male workers have an average weekly wage as Rs. 150 and standard deviation Rs. 45. A random sample of 1200 female workers has an average weekly wage as Rs. 160 and standard deviation Rs. 60. Can we say that the average wage of female and male workers is same? (Test at 5% and 1% significant level)
 2. In a school, 10 students are failed out of 100 students in SSC. Find 95% and 99.73% confidence interval for fail student.

OR

- Q.3 a.** If the correlation coefficient for a random sample of 400 pairs is 0.3, obtain 95% and 99% confidence limits for the population correlation. **07**
- b.** The proportion of educated in two populations are respectively 0.65 and 0.7. If two samples of size 1200 and 800 are selected respectively, can we say that there is no significant difference between two population proportion? **07**

- Q.4. Write short notes: (Any Three)** **12**
1. Explain Type 1 & Type 2 Error
 2. Explain significance test of one large sample mean
 3. Explain Critical Region and Power of Test
 4. Explain significance test of correlation coefficient in small sample test
 5. Explain significance test of proportion of success in large sample test
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