

2408000603010002
EXAMINATION NOVEMBER 2024
BACHELOR OF COMMERCE (NCF-NEP) (THIRD SEMESTER)
MAJOR - STATISTICAL INFERENCE-LEVEL 1

[Time: As Per Schedule]

[Max. Marks: 50]

Instructions:

1. Fill up strictly the following details on your answer book

- a. Name of the Examination : **BACHELOR OF COMMERCE (NCF-NEP) (THIRD SEMESTER)**
- b. Name of the Subject : **MAJOR - STATISTICAL INFERENCE LEVEL-1**
- c. Subject Code No : **2408000603010002**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

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Student's Signature

Q.1 Answer the following (Any Five)

10

- 1) Explain Critical Region
- 2) The correlation coefficient for 625 pair observations is 0.5. find Standard error to test " $\rho = 0$ "
- 3) Explain Type 2 Error
- 4) If 0.01, 0.02, 0.03 and 0.04 are the value of $\frac{(f_o - f_e)^2}{f_e}$ then find X^2
- 5) A sample of size 100 was drawn and sample mean was found to be 99. Test whether the sample could have come from normal population with mean 100 and variance 100?
- 6) What is small sample test?
- 7) What is confidence interval?

Q.2 The table shows the information of 2 sample

14

Sample A	20	30	50	10	50	60	80	20
Sample B	10	20	50	70	50	40	30	50

- a) is there any significant difference between two sample variances? test it.
- b) is there any significant difference between two sample mean? test it.

OR

- a) In an anti-malaria campaign in a certain area, quinine was administered to 812 persons out of a total population of 3248. The number of fever cases reported is shown below. Discuss the usefulness of quinine in checking malaria.

7

Treatment	Fever	No Fever
Quinine	30	250
No Quinine	70	650

- b) 10 sales executive trainees are assigned selling jobs right after their recruitment. After a fortnight they are withdrawn from their field duties and given a month's training for executive sales. Sales executed by them in thousands of rupees before and after the training, in the same period are listed below. Do these data indicate that the training has Contributed to their performance?

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Before Training	140	130	135	135	130	135	140	145	150	145
After Training	140	135	135	140	130	140	150	150	155	160

Q.3 Answer the following.

14

- 1) A random sample of 400 male workers have an average weekly wage as Rs. 170 and standard deviation Rs. 30. A random sample of 450 female workers has an average weekly wage as Rs. 164 and standard deviation Rs. 27. is variability of wages for both workers equal test at 5% and 1% significant level.

- 2) The correlation coefficient is 0.81 for 900 pairs of observation. Obtain 95% & 99% confidence interval for population correlation coefficient.

OR

Q.3

- a) The variance is 100. The mean of 1000 size samples taken from them is 110. Then find the 95% and 99% confidence interval for the population mean. **7**
- b) If proportion of two population are 0.5 and 0.7 respectively. We draw two sample sizes of 500 and 600 respectively. Test the significance of two population proportion at 5%. **7**

Q.4 Write short notes: (Any Three) **12**

- 1) Explain Power of Test and Level of Significance
- 2) Explain Null and Alternative Hypothesis
- 3) Explain significance test of correlation coefficient in small sample test
- 4) Explain significance test of one small sample mean
- 5) Explain significance test of proportion of success in large sample test
