

2008000205020002
EXAMINATION FEBRUARY-MARCH 2024
BACHELOR OF COMMERCE (HONORS)
(FIFTH SEMESTER)
BUSINESS STATISTICS – I - LEVEL 2

[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 (HONORS) (FIFTH SEMESTER)**
 - b. Name of the Subject: **BUSINESS STATISTICS – I- LEVEL 2**
 - c. Subject Code No: **2008000205020002**
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 A. Explain the advantages and limitations of random sampling. **3**

B. An intelligent test is conducted in a college and the students are divided into 3 strata. The following information is regarding that **5**

Stratum	No. of Students	Stratum mean	Stratum variance
FY	60	8	12
SY	30	6	10
TY	10	9	4.5

If a stratified random sample is obtained by taking respectively 10,6 and 3 units from these strata find the variance of the stratified mean also find population mean.

C. The observation of populations are as follows: **5**
 4,10,5,7,11,8,4,1,12,9,15,7,6,8,13. Taking all systematic samples of size three verify $E(\bar{Y}_{sy}) = \bar{Y}$. also find $V(\bar{Y}_{sy})$.

- Q.2** A. Explain null and alternative hypothesis? **4**
- B. On tossing a coin 400 times tails are obtained 160 times. Find the SD for proportion of head. Is the coin biased? **4**
- C. How the significance of the difference between two standard deviations of two large sample can be tested? **4**
- Q.3** A. Before an increase in price of tobacco in sample of 500 individual 400 are found to be smokers after the increase in price of tobacco in another sample of 600 individuals 400 are found to be smokers. Then decided whether the increase in price has created any significant effect on the proportion of smokers? **5**
- B. A random sample of 729 pairs has the correlation coefficient 0.5. test the significance of correlation coefficient on 95% confidence limits for the population correlation coefficient. **3**
- C. In a random sample of 500 apples 60 found to be bad. Test the hypothesis that 8% apples are bad in the population. **5**
- Q.4** A. Difference between p chart and np chart? **4**
- B. Five observations are taken daily for ten days from a production process. Draw \bar{X} and R charts and states your findings. [$n = 5, d_2 = 2.236, D3 = 0, D4 = 2.12$] **8**

Date	1	2	3	4	5	6	7	8	9	10
Observations	70	76	74	76	80	78	77	79	76	71
	80	79	78	77	73	81	75	75	75	73
	78	73	75	72	75	79	75	94	75	70
	72	74	77	76	76	76	76	77	74	71
	78	73	79	73	76	74	77	76	75	73
