25U184S (Pages: 3) Name : ....

Reg. No : ....

FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(FYUGP)

CC24UCOM1MN109 - ESSENTIAL STATISTICS FOR BUSINESS ANALYTICS

(Commerce - Minor Course)

(2024 Admission - Supplementary/Improvement)

Time: 2.0 Hours Maximum: 70 Marks

Credit: 4

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 3 marks.

1. What is the relationship between sample size and sampling error? [Level:2] [CO1]

2. What is the primary goal of sampling in research? [Level:2] [CO1]

3. Describe the relationship between sample size and the applicability of the Central Limit Theorem. [Level:2] [CO1]

4. Can you provide an example of each type of hypothesis and explain its significance in a research study. [Level:2] [CO2]

5. Explain the uses of Z -test. [Level:2] [CO2]

6. Explain the difference between positive and negative correlation. [Level:2] [CO3]

7. Explain the properties of regression lines and the significance of the regression coefficient. [Level:2] [CO3]

8. Explain Cyclic variation and Irregular Fluctuations. [Level:2] [CO4]

9. State the advantages of using the free hand curve method. [Level:2] [CO4]

10. How is a moving average used in Time Series Analysis (TSA)? [Level:2] [CO4]

(Ceiling: 24 Marks)

Part B (Paragraph questions/Problem)

Answer ***all*** questions. Each question carries 6 marks.

11. Explain the difference between simple random sampling and systematic sampling with example. [Level:3] [CO1]

12. A researcher wants to study the average height of students in a large university with 20,000 students. She decides to measure the height of 200 students she meets in the campus cafeteria during lunch hour. What potential problem might this sampling method have, and how could it affect the results of the study? [Level:3] [CO1]

13. Discuss the applications of the chi-square test. [Level:2] [CO2]

14. The productivity data of employees in six departments before and after a training program are as follows: [Level:3] [CO2]

Departments	A	B	C	D	E	F
Before Training	65	60	68	72	70	63
After Training	70	63	71	75	74	67

Can the training program be judged as effective? Test at the 5% level of significance. (t=2.57, 5 df.)

15. Analyze the advantages and disadvantages of using Spearman's rank correlation. [Level:4] [CO3]

16. Find the co-efficient of correlation from the following data. [Level:3] [CO3]

X	12	20	15	22	18	24	20	12	15	22
Y	30	35	28	36	29	39	30	25	30	38

17. HR data relates years of experience (X) to annual salary (Y, in thousands of dollars): [Level:3] [CO3]

X : 1, 3, 5, 7, 9, 11, 13, 15

Y : 40, 50, 60, 70, 80, 90, 100, 110

Calculate the regression equation (X on Y).

18. Calculate trend value from the following data using three-yearly moving averages. [Level:3] [CO4]

Year	2013	2014	2015	2016	2017	2018	2019	2020
Price (Rs)	14	12	11	9	10	15	16	12

(Ceiling: 36 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

19. In an experiment on immunization of cattle from tuberculosis, the following results are obtained: [Level:3] [CO2]

Particulars	Affected	Not Affected
Inoculated	12	26
Not Inoculated	16	6

(Five percent value of chi-square with1 d.f = 3.84)

Calculate Chi-square and discuss the effect of vaccine in controlling susceptibility to tuberculosis.

20. Fit a straight-line trend using the method of least squares from the data given below and estimate the revenue for the year 2021: [Level:3] [CO4]

Year	2014	2015	2016	2017	2018	2019	2020
Sales	250	255	263	270	275	280	285

(1 × 10 = 10 Marks)

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