



Reg. No.

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I Semester All UG Courses Degree Examination, January/February - 2025**STATISTICS****Business Statistics (OE)****(NEP Scheme F+R)****Time : 2½ Hours****Maximum Marks : 60****Instructions to Candidates:**

1. Answer any **Eight** questions from section-A and any **Three** from Section-B.
2. Scientific **calculators** are allowed.

SECTION - A**I. Answer any EIGHT questions from the following. (8×3=24)**

1. What is Central tendency? Explain the good qualities of measures of Central tendency
2. What is Scatter diagram? Explain types of correlation using scatter diagram.
3. State the properties of Karl Pearson's coefficient of correlation
4. Mention the properties of regression coefficient.
5. What is index Number? Listout the uses of index numbers.
6. Explain the method of constructing weighted index number.
7. Define consumer price index number. Mention the problems involved in constructing of consumer price index number.
8. Give a brief note on components of time series.
9. Write normal equations for fitting quadratic equation $Y = a + bx + cx^2$
10. Explain moving average method of computing trend values.

SECTION - B**II. Answer any THREE questions from the following. (3×12=36)**

11. a) For the following distribution of mileage [km per liter] of 36 cars of the same model was tested by a manufacturer, find mean, median and mode.

| | | | | | |
|----------------|----|----|----|----|----|
| Mileage[km/l] | 15 | 20 | 22 | 17 | 30 |
| Number of cars | 6 | 9 | 4 | 10 | 7 |



- b) Calculate mean deviation from mean, for the following series of weekly wages
21 24 28 32 30 30 46 47 48 42. (6+6)

12. a) Price of a particular Commodity for four years in two cities are given below. Find which city has more stable prices.

| | | | | |
|-----------------|----|----|----|----|
| Price in City A | 20 | 22 | 19 | 23 |
| Price in City B | 10 | 20 | 18 | 12 |

- b) Calculate β_1 and β_2 . Comment on skewness and kurtosis for the distribution
4, 5, 8, 7, 9, 3, 4, 4, 3, 5, 4, 4 (6+6)

13. a) Following are the two variables. Demand [x] and supply [y] for a particular goods. Find the coefficient of correlation between the variables.

| | | | | | | | | | | |
|------------|----|----|----|----|----|----|----|----|----|----|
| Demand (X) | 39 | 65 | 62 | 90 | 82 | 75 | 25 | 98 | 36 | 78 |
| Supply (Y) | 47 | 53 | 58 | 86 | 62 | 68 | 60 | 91 | 51 | 84 |

- b) The following data relates to the age of husbands and wives. (4+8)

| | | | | | | | | | | |
|--------------------------|----|----|----|----|----|----|----|----|----|----|
| Age of husband [years] X | 25 | 28 | 30 | 32 | 35 | 36 | 38 | 39 | 42 | 45 |
| Age of wife [years] Y | 20 | 26 | 29 | 30 | 25 | 18 | 26 | 35 | 35 | 46 |

obtain regression equation of Y on X.

14. a) Construct price index numbers from the following data using
i) Laspeyre's ii) Paasche's iii) Marshall edgeworth
iv) Fisher's index number.

| Commodities | | A | B | C | D |
|-------------|----------|----|----|----|----|
| 2020 | Price | 8 | 7 | 6 | 4 |
| | Quantity | 10 | 12 | 14 | 20 |
| 2022 | Price | 6 | 9 | 6 | 2 |
| | Quantity | 10 | 8 | 12 | 10 |

- b) Compute cost of living index number.

| Item | Food | Clothing | Fuel | Others |
|--------------------|------|----------|------|--------|
| Base year price | 120 | 45 | 85 | 25 |
| Current year price | 150 | 25 | 115 | 90 |
| Weight | 65 | 20 | 20 | 6 |

(8+4)



(3)

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- 15 a) Calculate trend values using 5 yearly moving averages. (6+6)

| | | | | | | | | |
|----------------|------|------|------|------|------|------|------|------|
| Year | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
| Original value | 110 | 115 | 118 | 110 | 116 | 111 | 117 | 118 |

- b) For a given time series, fit a quadratic equation of the type $y = a + bx + cx^2$.
Estimate production for the year 2022.

| | | | | | | |
|-------|------|------|------|------|------|------|
| Year | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| Sales | 32 | 47 | 65 | 92 | 132 | 190 |
