

(8 pages)

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B.Com. (CBCS) DEGREE EXAMINATION,
APRIL 2026

Second Semester

Banking and Finance

Elective – BUSINESS MATHEMATICS &
STATISTICS

(For those who joined in July 2023 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. If 3 pens cost Rs.15, then the cost of 5 pen is Rs. _____.
(a) 20 (b) 25
(c) 30 (d) 35
2. $\log_{10}1000 = ?$
(a) 2 (b) 3
(c) 4 (d) 5

3. The amount received after certain years including interest is called:
(a) Principal (b) Amount
(c) Discount (d) Income
4. An annuity is a series of
(a) Regular payments
(b) Irregular payments
(c) One-time payment
(d) Discount payments
5. The middle value in an arranged data set is
(a) Mean (b) Median
(c) Mode (d) Range
6. Standard deviation is a measure of
(a) Central tendency (b) Correlation
(c) Dispersion (d) Regression
7. A line showing average relationship between two variables is called
(a) Correlation line (b) Regression line
(c) Trend line (d) Mean line
8. Spearman's rank correlation is used for
(a) Quantitative data (b) Ranked data
(c) Qualitative data (d) None of these

9. The index with a fixed base year is called
 (a) Chain Index (b) Fixed Index
 (c) Cost Index (d) Price Index
10. Cost of Living Index shows
 (a) Standard of living of people
 (b) Price changes in luxury goods
 (c) Population growth
 (d) None of these

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) If 12 men earn Rs. 900 in 15 days, apply the principle of variation to find how much will 8 men earn in 9 days.
 Or
 (b) Find the value of x when x is a mean proportional between $x - 2$ and $x = 6$.
12. (a) Find the interest value of Rs. 5,000 due in 8 months at 10% simple interest.
 Or
 (b) The population of a country increases every year by 2.4% of the population at the beginning of the year. In what time will the population double itself?

13. (a) Calculate the Arithmetic Mean, Geometric Mean and Harmonic Mean of the following quantities: 3, 6, 24, 48.

Or

- (b) What are the characteristics of a Measure of Variation?
14. (a) Find the coefficient of correlation between x and y from the following data

X	10	14	15	28	35	48
Y	74	61	50	54	43	26

Or

- (b) The following table gives age (X) in years of cars and annual maintenance cost Y (in hundred rupees).

X:	1	3	5	7	9
Y:	15	18	21	23	22

Estimate the maintenance cost for a 4-year old car after finding the regression equations.

15. (a) From the following data calculate the following data calculate the four year moving average and determine the trend values. Find the short term fluctuations. Plot the original values and the trend on a graph paper.

Year :	1958	1959	1960	1961	1962
Value :	50.0	36.5	43.0	44.5	38.9
Year :	1963	1964	1965	1966	1967
Value :	38.1	32.6	41.7	41.1	33.8

Or

- (b) Construct index number of prices from the following data using.

- (i) Laspeyre's and
(ii) Fisher's methods.

Commodity	1970		1980	
	Price (in Rs.)	Quantity	Price (in Rs.)	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) The efficiency coefficient of y of a machine varies directly as the n th power of a variable quantity x . Find the formula between x and y using the following data, $x=7, y=88$, and $x=3, y=297$.

Or

- (b) A precious stone worth Rs. 25,000 is accidentally dropped and broken into three pieces, the weights of which are respectively proportional to 5: 9:11. The value of the stone is proportional to the square of the weight. Calculate the loss thus incurred by the breakage.

17. (a) Find the compound interest and amount for Rs. 5000 for 3 years at 8% per annum when

- (i) The interest is payable annually,
(ii) The interest is payable half yearly,
(iii) The interest is payable quarterly.

Or

- (b) Describe the various types of Annuity applications.

18. (a) Calculate the quartiles for the following distribution:

Class	Frequency
1-5	2
6-10	8
11-15	12
16-20	18
21-25	24
26-30	14
31-35	10
36-40	6
41-45	4
46-50	2

Or

- (b) Calculate the mode from the following frequency distribution.

Value of the item	12	13	14	25	26	27	38	40
Frequency	2	3	5	8	7	3	2	1

19. (a) Calculate Karl Pearson's coefficient of correlation for the following data of prices and demand (43, 105), (54, 98), (85, 53), (91, 49), (59, 84), (95, 40), (68, 73), (29, 59), (73, 63), (72, 52).

Or

- (b) The following data represents the age (x in years) and blood pressure (y) of 10 persons.

x (age)	32	34	36	38	40	42	44	46	48	50
y (BP)	120	125	128	130	133	135	137	140	142	145

Fit a regression line of y on x and estimate the blood pressure for a person aged 45 years.

20. (a) The seasonal indices of the sale of garments of a particular type in a store are given below.

Qr	Jan-March	April-June	July-Sep	Sep-Dec
SI	98	89	83	130

If the total sales in that first quarter of a year be Rs.10,000 find how much worth of garments of this type should be kept in stock to meet the demand in each of the remaining quarter.

Or

- (b) Prepare index numbers (1978 = 120) from the link relatives given below.

Year	1979	1980	1981	1982	1983	1984	1985
LR	105	75	71	105	95	90	90