KAMARAJ COLLEGE (Autonomous)

Accredited with A+ Grade by NAAC

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(6 Pages) **Reg. No:……**

Question Code: 26E03002 **Course Code : 25UEBF21/25UEHO21**

UG Degree - End Semester Examinations, April 2026

Second Semester

B.Com Banking and Finance/B.Com Honours

Business Mathematics and Statistics

(For those who joined in June 2025 onwards)

Time : 3Hours **Maximum : 75 Marks**

PART – A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

CO:1 1. Duplicate Ratio of 2:3 is

K:1 (a) 4:9 (b) 8:27

(c) 2:3 (d) 4:6

CO:1 2. The value of $10^{150} \div 10^{146}$

K:2 (a) 10 (b) 100

(c) 1000 (d) 10,000

CO:2 3. Periodic fixed sum paid under certain stated conditions is called.

K:1 (a) Annuity (b) Perpetuity

(c) Deferred Perpetuity (d) Annuity due

CO:2 4. The common difference of the AP whose $a_n = -3m+7$ is

K:2 (a) 1 (b) 3

(c) -3 (d) 2

CO:2 5. The best measures of central tendency is

K:2 (a) Arithmetic Mean (b) Geometric Mean

(c) Harmonic Mean (d) Median

CO:3 K:1 6. The sum of squares of deviations is least when measured from

(a) Median (b) 0

(c) Mean (d) Mode

CO:3 K:2 7. When the two regression lines coincide, then r is

(a) 0 (b) -1

(c) 1 (d) 0.5

CO:4 K:2 8. The value of r^2 for a particular situation is 0.81. What is co-efficient of correlation

(a) 0.81 (b) 0.9

(c) 0.09 (d) 0.08

CO:4 K:2 9. The best average in the construction of index numbers is

(a) Simple aggregative index (b) Passche's index

(c) Laspeyre's (d) Kelly's index

CO:5 K:2 10. Seasonal variations repeat during a period of

(a) One year (b) Five year

(c) Seven year (d) Two year

PART – B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

CO:1 K:3 11. (a) The ratio of the prices of two houses was 16:23. Two years later, when their prices of the first has risen by 10% and that of the second by Rs.477, the ratio of their prices becomes 11:20. Find the original prices of the two houses.

(OR)

(b) Simplify $\frac{2^5.8^2.4^3}{2.(64)^2}$

CO:2 K:3 12. (a) Find an AP where 5th term is 7 and 8th term is 1.

(OR)

(b) If Rs. 350 amounts to Rs. 455 at 10% simple interest, find the period

CO:3 K:4 13. (a) Locate the median from the following:

Size of Shoes	Frequency
5	10
5.5	16
6	28
6.5	15
7	30
7.5	40
8	34

(OR)

(b) Calculate the mean deviation from mean for the following data:

Class interval	2-4	4-8	6-8	8-10
Frequency	3	4	2	1

CO:4 K:4 14. (a) From the following data of the rainfall and production of rice, find the most likely production corresponding to the rainfall of 40".

	Rain fall(inches)	Production (Quintals)
Mean	3.5	50
Standard deviation	5	8
Co-efficient of correlation = +0.8		

(OR)

(b) Co-efficient of correlation between two variables X and Y is 0.48. Their co-variance is 36. The variance of X is 16. Find the standard deviation of Y series.

CO:5 K:3 15. (a) Calculate trend value from the following data using the method of Least Square.

Year	2010	2011	2012	2013	2014	2015
Production	7	9	12	15	18	23

(OR)

(b) An enquiry into the budgets of middle class families in a certain city gave the following information:

Expenses	Food 35%	Fuel 10%	Clothing 20%	Rent 15%	Miscellaneous 20%
Prices 2024	Rs.150	Rs.25	Rs.75	Rs.30	Rs.40
Prices 2025	Rs.145	Rs.23	Rs.65	Rs.30	Rs.45

What is the cost of living index number of 2025 as compared with that of 2024?

PART – C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

CO:1 K:5 16. (a) Find the value of A = $\frac{36.71 \times \sqrt{4.51}}{(1.87)^2 \times 2.19}$

(OR)

(b) Simplify $\frac{9(4^x)^2}{16^{x+1} - 2^{x+1}.8}$

CO:2 K:5 17. (a) Find the sum to n terms of the series

5 + 55 + 555 + …… (up to n terms)

(OR)

(b) The difference between compound interest and simple interest is Rs. 384.60. Number of years 4. Rate of interest 10%. Find out the Sum.

CO:3 K:3 18. (a) The following is the frequency distribution of the marks obtained by 250 students in an examination. Compute the Mean, Median and Mode.

Marks obtained	No. of students	Marks obtained	No. of students
0-10	15	40-50	12
10-20	20	50-60	31
20-30	25	60-70	71
30-40	24	70-80	52

(OR)

(b) Compute standard deviation from the following data

Expenditure(Rs)	100 -200	200 -300	300 -400	400 -500	500 -600
No. of families	30	20	40	5	10

CO:4 K:5 19. (a) Find out the co-efficient of correlation in the following case.

Height of father (inches)	65	66	67	67	68	69	71	73
Height of son (inches)	67	68	64	68	72	70	69	70

(OR)

(b) The following table gives the various values of two variables.

X	42	44	58	55	89	98	66
Y	56	49	53	58	65	76	58

Determine the regression equations which may be associated with these values and calculate Karl Pearson's co-efficient of correlation.

CO:5 K:4 20. (a) Calculate quantity index numbers from the following data by a) Laspeyre's method

b) Paasche's method and c) Fisher's method

Commodity	1990		1993	
	Price	Quantity	Price	Quantity
I	15	10	20	13
II	23	15	32	18
III	39	22	45	25
IV	17	12	15	10
V	25	11	32	15
VI	30	8	40	10

(OR)

(b) The following table gives the number of motor cars produced in a country over ten years.

Year	1	2	3	4	5	6	7	8	9	10
Production('000)	96	74	68	50	99	172	245	302	332	345

Evaluate trend by the method of moving average.