SUBJECT CODE: 19AF/AC/SB15

B.COM (A&F). DEGREE EXAMINATION NOVEMBER 2022
ACCOUNTING AND FINANCE
FIRST SEMESTER

COURSE	:	ALLIED – CORE	
PAPER	:	STATISTICS FOR BUSINESS DECISIONS	
TIME	:	3 HOURS	MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS: (10 x 2 = 20)

1. What is Variable?
2. What is Estimation?
3. What is regression?
4. What are the components of time series?
5. What is categorical data? Give examples
6. If $r_{12} = 0.70$; $r_{13} = 0.61$; $r_{23} = 0.40$, Compute $r_{23.1}$
7. When mean is 39,350, standard deviation is 3260 and sample size is 100, calculate standard error.
8. Out of sample of 120 persons in a village, 76 were administered a new drug for preventing influenza and out of them 24 persons were attacked by influenza. Out of those who were not administered the new drug, 12 persons were not affected by influenza. Prepare 2X2 tables showing the actual and expected frequencies.
9. Given the two regression coefficients X on Y is 1.5 and Y on X is 0.2 find the correlation coefficient
10. Fit a trend line to the following data by free hand method

Year	2003	2004	2005	2006	2007	2008	2009	2010
Sales (Rs. in lakhs)	76	80	130	144	138	120	174	190

SECTION – B

ANSWER ANY FIVE QUESTIONS: (5 x 8 = 40)

11. What are non-parametric tests? Discuss the conditions for applying chi-square test.
12. Explain the procedure for testing of hypothesis.
13. From the following table, calculate the coefficient of correlation by Karl Pearson's method:

X	6	2	10	4	8
Y	9	11	?	8	7

Arithmetic mean of X and Y series are 6 and 8 respectively.

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14. A test was administered for two batch of students. The marks scored by the students are given below.

Batch 1	30	35	25	20	25	15	20	25	30
Batch 2	26	22	20	30	22	19	15	-	-

Examine whether there is significant difference in mean marks scored by the two batches of students. (Table value of t at 5% level of significance is 2.14)

15. In an experiment on the immunization of goats from anthrax, the following results were obtained. Derive your inference on the vaccine: table value at 5% level of significance is 3.841

	Died of Anthrax	Survived	Total
Inoculated with vaccine	2	10	12
Not inoculated	6	6	12
	8	16	24

16. Given the following data, calculate the expected value of Y when X=12

	x	y
Average	7.6	14.8
Standard deviation	3.6	2.5

Coefficient of correlation = 0.99

17. Calculate three yearly moving average of the following data

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
No.of. students	15	18	17	20	23	25	29	33	36	40

SECTION – C

ANSWER ANY TWO QUESTIONS: **(2 x 20 = 40)**

18. Calculate the coefficient of correlation between age and annual maintenance cost and comment:

Age of cars (years)	2	4	6	7	8	10	12
Annual maintenance cost (Rs.)	1600	1500	1800	1900	1700	2100	2000

19. The following data is relating to the units produced per day by 4 workers in 5 machines of different types. (Table value of F value for workers at 5% level of significance is 3.49 and Table value of F value for machines at 5% level of significance is 3.26)

(A)   Test whether the 4 workers differ in terms of mean productivity and

(B)   Whether the mean productivity is the same for the 5 machines

Workers	Machine type				
	1	2	3	4	5
1	10	9	8	12	10
2	11	8	11	14	11
3	13	10	9	10	11
4	14	9	8	12	12
Total	48	36	36	48	44

20. A certain drug was administered to 500 three people out of a total of 800 included in the sample to test its efficacy against typhoid. The results are given below

	Typhoid	No Typhoid	Total
Drug	200	300	500
No drug	280	20	300
Total	480	320	800

On the basis of these data, can it be concluded that the drug is effective in preventing typhoid? (Given $v = 1$, table value at 5% level significance $= 3.84$)

21. You are given the data relating to purchases and sales. Obtain the two regression equations by least square and estimate the likely sales when the purchases equal to 100.

Purchases(X)	62	72	98	76	81	56	76	92	88	49
Sales (Y)	112	124	131	117	132	96	120	136	97	85

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