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BCMCMC 158

II Semester B.Com. Degree Examination, April/May 2019

(Credit Based Semester Scheme)

(Common to all Batches)

COMMERCE

Business Statistics and Mathematics

Time : 3 Hours]

[Max. Marks : 80

- Instructions :**
- 1) Non programmable calculator may be used.
 - 2) Logarithm tables will be provided on request.
 - 3) Provide working notes wherever necessary.

Shri Dharmasthala Manjunatheshwara
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MANGALORE - 575 009

SECTION - A

Answer **any four** of the following :

(4 × 4 = 16)

1. State the properties of regression coefficients.
2. What is Beta of Investment? Give the interpretation of the value of Beta.
3. Briefly explain the components of Time Series.
4. The cash price of the article sold is Rs. 18,000. The trade discount and cash discounts are 20% and 10% respectively. Find the marked price of the article.
5. A person has R.D. a/c with a bank for 5 years. At 4.5% simple interest per annum, what will be the amount at the end of fifth year?
6. If the simple interest on a sum of money for 2 years at 6% per annum is Rs. 600, what is the compound interest on the same sum at the same rate of interest for the same period?



SECTION - B

Answer **any four** of the following :

(4 × 8 = 32)

7. From the following data calculate Karl Pearson's correlation coefficient :

Price (Rs.)	38	66	61	92	81	70	30	96	38	78
Supply (Rs.)	45	64	59	85	73	65	43	90	50	86

8. Calculate Spearman's Rank correlation for the following data :

Marks in Statistics :	45	95	72	36	38	45	20	60	36	90
Marks in Accountancy :	35	90	85	35	15	40	30	45	35	80

9. You are given the following information about the expenditure on advertisement and sales (rupees in lakhs) :

	Advertisement	
	Expenditure	Sales
Mean	20	120
S.D.	5	2

Coefficient of correlation = 0.8

- (a) Obtain two regression equations.
 (b) Find the likely sales when expenditure on advertisement is Rs. 30 lakhs.
10. At certain rate of interest compounded quarterly a sum doubles in 3 years.
 Find
 (a) The nominal rate of interest
 (b) Effective rate of interest.
11. The following are the two regression equations. Find the correlation coefficient between x and y and their means :

$$x + 2y - 5 = 10$$

$$2x + 3y - 8 = 10$$



12. Find the equated due date for the following bills :

- (a) Rs. 5,000 drawn on March 20 for 4 months
- (b) Rs. 8,000 drawn on April 15 for 3 months
- (c) Rs. 10,000 drawn on May 12, for 5 months
- (d) Rs. 6,000 drawn on June 6, for 2 months.

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SECTION - C

Answer **any two** of the following :

(2 × 16 = 32)

13. Compute the coefficient of correlation between dividends and prices of securities as given below :

Security price (Rs.)	Annual dividend (Rs.)				
	0-5	5-10	10-15	15-20	20-25
50-100	5	6	-	-	-
100-150	-	5	8	1	-
150-200	-	-	4	3	3
200-250	-	-	-	6	3
250-300	-	-	-	4	2

14. The following data relates to monthly income and expenditure on food of 10 families (Rs. in thousands) :

Income (Rs.) :	32	35	40	42	45	57	43	30	34	42
Expenditure : (Rs.)	20	22	25	27	30	34	25	20	21	26

- (a) Find two regression equations
- (b) Find the most likely expenditure when income is Rs. 50,000
- (c) Find the correlation coefficient using regression coefficients.

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15. The following are the annual profit in a certain business. Fit a straight line trend for the following data :

Year :	2011	2012	2013	2014	2015	2016	2017
Profit (Rs. '000)	60	72	75	78	83	88	95

Also

- (a) find the trend values by the method of least squares
- (b) make an estimate of the profit for the year 2019.
16. A bill was drawn on April 15, 2018 for a period of 4 months. It was accepted on May 18 and discounted on June 6, 2018 at 8% p.a. If the depositor received Rs. 24,600, calculate face value, true discount, Banker's gain and present value of the bill.