Reg. No. | | | | | | | | | |

BCMCMC 158

Credit Based II Semester B.Com. Degree Examination, September 2022
(2018 – 19 and Earlier Batches)
BUSINESS STATISTICS AND MATHEMATICS

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **any four** of the following questions. **(4×4=16)**

1. State the properties of regression coefficients.
2. Six students are ranked in studies and sports as below. Find the co-efficient of rank correlation :

Rank in studies	1	2	3	4	5	6
Rank in sports	6	5	3	1	4	2

3. The list price of an article is ₹ 460. A wholesaler offers 15% trade discount to the retailer. In addition, if he offers 3% cash discount for down payment, find the selling price of the article.
4. Find the simple interest and the amount on a principal of ₹ 10,000 deposited at 8% p.a. for 3 years and 9 months.
5. What is the present value of Rs. 10,000 due in 2 years at 8% p.a. interest compounded annually ?
6. Find the equated due date of payments of the following bills :
   ₹ 250 due on 10th June
   ₹ 400 due on 20th July
   ₹ 1,000 due on 11th August.

SECTION – B

Answer **any four** of the following questions. **(4×8=32)**

7. Calculate Karl Pearson's co-efficient of correlation for the following data :

X	8	10	15	17	20	22	24	25
Y	25	30	32	35	37	40	42	45

8. If the regression equations of x on y and y on x are respectively $2x + 3y = 18$ and $x + 2y = 15$, find $\bar{x}$, $\bar{y}$ and correlation coefficient r.

P.T.O.

9. Find 3 yearly moving averages from the following data.

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Production	148	136	129	134	136	132	130	140	138	128

10. At certain rate of interest compounding quarterly, a sum doubles in 4 years. Find
    i) the nominal rate of interest
    ii) the effective rate of interest.

11. The banker's gain on a certain bill due after 6 months at 16% interest p.a. is ₹ 40. Find (i) Face value of the bill (ii) True Discount (iii) Banker's Discount.

12. Explain different components of time series with examples.

SECTION – C

Answer **any two** of the following questions. **(2×16=32)**

13. Calculate Karl Pearson's co-efficient of correlation for the following data.

Marks in Statistics	**Marks in English**			
	20 – 30	**30 – 40**	**40 – 50**	**50 – 60**
10 – 30	8	12	–	–
30 – 50	–	22	10	–
50 – 70	–	8	23	7
70 – 90	–	–	7	3

14. Obtain the two regression equations from the following data and estimate
    i) The age of wife when husband's age is 26 years
    ii) The age of husband when the age of wife is 20 years.

Age of Husband	18	19	20	21	22	23	24	25	26	27
Age of Wife	17	17	18	18	18	19	19	20	21	21

15. The following data are the annual profits in a business.

Year	2015	2016	2017	2018	2019	2020	2021
Profits ('000 ₹)	60	72	75	65	80	85	95

Fit a straight line trend to the above data and find the trend values. Also estimate the profit for the year 2022.

16. A three month's bill was drawn up on April 16 and discounted at 6% p.a. on May 31. What was the face value of the bill, if the depositor received ₹ 754.34 ? What amount would be the banker's gain and true discount ?

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