

**Credit Based Second Semester B.Com. Degree Examination, April/May 2017  
(Semester Scheme) (2014 – 15 Batch Onwards)**

**COMMERCE**

**Business Statistics and Mathematics – II**

Time : 3 Hours

Max. Marks : 80

- Instructions :** 1) Non programmable calculators **only** are used.  
2) Working notes should be shown **whenever** needed.

**SECTION – A**

Answer **any four** of the following :

(4×4=16)

1. Explain the properties of regression co-efficients.
2. At what rate of simple interest does a principal doubles itself in 5 years.
3. Find the compound interest on Rs. 10,000 for 9 months at 8% p.a, if the interest is compounded Quarterly.
4. Explain the components of Time-Series.
5. The difference between true discount and bankers discount on a bill due after four months at 5% p.a is Rs. 60. Find the face value of the Bill.
6. In a bi-variable data, the two regression co-efficients are  $-7.3$  and  $-0.11$ . Find the correlation co-efficient.

**SECTION – B**

Answer **any four** questions :

(4×8=32)

7. Find the correlation co-efficient between the sales and expenses of the following 10 firms.

Firm :	1	2	3	4	5	6	7	8	9	10
Sales (000's Rs.) :	50	50	55	60	65	65	65	60	60	50
Expenses :	11	13	14	16	16	15	15	14	13	13



8. The following data is about the Sales and Advertisement expenditure of a firm.

	Sales (in crores of Rs.)	Advertisement Expenditure (in crores of Rs.)
Mean	40	6
S.D.	10	1.5

The co-efficient of correlation  $r$  is 0.9.

- 1) Estimate the likely Sales of a proposed Advertisement expenditure of Rs. 10 crores.
- 2) What would be the Advertisement expenditure if the firm proposes a Sales target of 60 crores of Rupees ?

9. For the following time-series obtain four yearly moving averages.

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sales (000' Rs.)	290	280	285	310	320	305	310	330	340	321	320	340

10. Compute Spearman's rank correlation co-efficient from the following data :

Sales (Lakhs) :	45	56	39	54	45	40	56	60	30	36
Advertisement Cost (000' Rs.)	40	36	30	44	36	32	45	42	20	36

11. Find the equated due date for the following bills.

Rs. 3,700 drawn on Oct. 10 for 5 months

Rs. 6,800 drawn on Nov. 5 for 4 months

Rs. 5,400 drawn on Dec. 1 for 4 months

Rs. 7,000 drawn on Jan. 5 for 3 months

12. At a certain rate of interest compounded Quarterly, a sum doubles in four years. Find :

i) The nominal rate of interest.

ii) The effective rate of interest.



SECTION – C

Answer **any two** questions :

(2×16=32)

13. Calculate the co-efficient of correlation for the following data.

<b>X \ Y</b>	18	19	20	21
10 – 20	4	2	2	–
20 – 30	5	4	6	4
30 – 40	6	8	10	11
40 – 50	4	4	6	8
50 – 60	–	2	4	4
60 – 70	–	2	3	1

14. Fit a straight line trend to the following time series and determine the profits for the year 2016. Also obtain all the trend values.

<b>Year :</b>	2007	2008	2009	2010	2011	2012	2013	2014
<b>Profits (000' Rs.)</b>	28	35	42	51	49	63	68	76

15. Obtain the two regression equations from the following data and estimate :

- 1) The age of wife when husband's age is 26 years.
- 2) The age of husband when the age of wife's is 22 years.

<b>Age of Husband :</b>	18	19	20	21	22	23	24	25	26	27
<b>Age of Wife :</b>	17	17	18	18	18	19	19	20	21	21

16. A bill was drawn on Jan. 12, 2016 for a period of 5 months. It was accepted on Jan. 19, 2016, and discounted on Feb. 2, 2016 at 14% p.a. If the bankers gain is Rs. 24, calculate the face value of the bill. Also determine the discounted value and present value of the bill.