



**III Semester B.Com. Examination, November/December 2018  
(Semester Scheme) (CBCS) (F + R) (2015-16 and Onwards)  
COMMERCE**

**3.6 : Quantitative Analysis for Business Decisions – II**

Time : 3 Hours

Max. Marks : 70

**Instructions :** Answers should be written completely either in  
**English or in Kannada.**

**SECTION – A**

1. Answer **any five** of the following sub-questions. **Each** sub-question carries **2** marks. **(5×2=10)**
- What is a linear correlation ?
  - What are the regression lines ?
  - State the components of time series.
  - Expand  $(y - 1)^5 = 0$ .
  - What is sampling distribution ?
  - What do you mean by population of universe ?
  - What are independent events ?



**SECTION – B**

Answer **any three** of the following questions. **Each** question carries **6** marks.

**(3×6=18)**

2. Find the rank correlation for the following data and give your comments :

<b>Marks in Accounts (X) :</b>	84	56	89	58	59	67	74	78
<b>Marks in Maths (Y) :</b>	38	69	56	58	63	78	87	77

3. You are given the following data :

<b>Variables</b>	<b>X</b>	<b>Y</b>
Mean	47	96
Variance	64	81
Correlation co-efficient between X and Y	0.36	

Calculate the regression line X on Y and also calculate X when Y = 88.

4. Interpolate the exports made in 2014 from the following using Binomial expansion method.

<b>Year</b>	2012	2013	2014	2015	2016	2017
<b>Exports (Crores ₹)</b>	210	230	?	280	300	350





5. What are different non-probability sampling techniques ?
6. The probability of an Indian having a car is 26%, the probability of Indian having a house is 40%. The probability of Indian owning a car and a house is 18%. What is the probability that Indian owns a car or a house ?

## SECTION – C

Answer **any three** of the following question. **Each** question carries **14** marks.

(3×14=42)

7. From the following table, find out Karl Pearson's co-efficient of correlation between age and reading habits of students.

<b>Age :</b>	15	16	17	18	19	20
<b>No. of students :</b>	250	200	150	120	100	80
<b>Regular Readers :</b>	200	150	90	48	30	12

8. From the following data :

- a) Calculate two regression equations.  
 b) Estimate the value of X when Y = 80 and Y when X = 90.  
 c) Determine the value of correlation co-efficient through the regression co-efficients.

<b>X</b>	40	48	52	68	72
<b>Y</b>	20	24	28	36	52



9. The following are the annual profits of a certain business.

<b>Year's</b>	2011	2012	2013	2014	2015	2016	2017
<b>Profits (in'000's)</b>	65	77	80	70	85	90	100

- a) Fit a straight line trend to these figures by the method of least squares.  
 b) Estimate the profit for the year 2021.  
 c) Plot the actual and trend values on a graph.

10. Estimate the steel production for the year 2013 and 2015 with the help of the following table :

<b>Year :</b>	2010	2011	2012	2013	2014	2015	2016
<b>Steel Production (in '000 tonnes)</b>	150	180	220	?	330	?	450

11. The following are the annual premium charged by an Insurance company for a policy of Rs. 1,000. Estimate the premium payable at the age of 26 by using Newton's method.

<b>Age (in years)</b>	20	25	30	35	40
<b>Premium (₹) (for ₹ 1,000 policy)</b>	23	26	30	35	42