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III Semester B. Com. Examination, November/December 2015  
(CBCS) (Fresh)  
(2015-16 and Onwards)  
COMMERCE

3.6 : Quantitative Analysis for Business Decisions – II

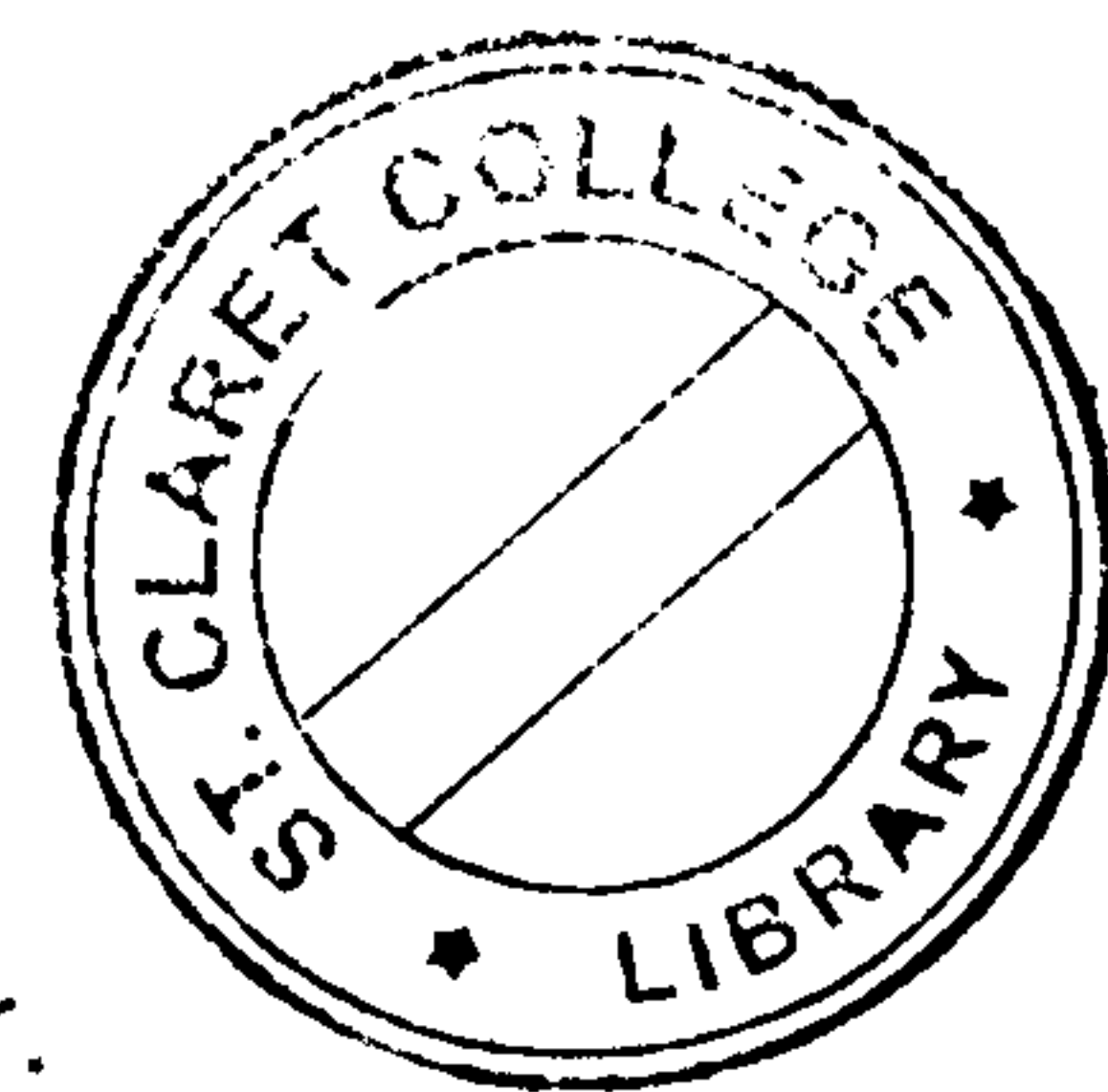
Time : 3 Hours

Max. Marks : 70

**Instruction :** Answer should be **completely** either in **English** or in **Kannada**.

SECTION – A

1. Answer **any five** sub questions. **Each** sub question carries **two** marks. (5×2 = 10)
- What is rank correlation ?
  - Define the term regression.
  - What is a seasonal variation ?
  - Expand  $(y - 1)^6 = 0$
  - What are the methods of sampling ?
  - What is an Event ?
  - If,  $r = 0.6$  and  $N = 64$  of a distribution, find the probable error.



SECTION – B

Answer **any three** questions. **Each** question carries **six** marks. (3×6 = 18)

2. Marks scored by 6 participants in a beauty contest assigned by two judges are given below

**Marks assigned by Judge – I :** 30    36    47    48    32    28

**Marks assigned by Judge – II :** 28    38    49    46    30    26

Calculate rank correlation after assigning rank

3. The correlation co-efficient between the variables X and Y is  $r = 0.60$ . If  $\sigma_x = 1.50$ ,  $\sigma_y = 2$ ,  $\bar{X} = 10$ ,  $\bar{Y} = 20$ . Calculate two regression equations.

4. Estimate the missing value of production.

**Year** : 2010    2011    2012    2013    2014    2015

**Production** : 320    300    ?    280    278    250

5. What are the different types of probability sampling techniques ?
6. One card is drawn from a standard pack of 52. What is the probability that it is :
- A Spade
  - A King
  - The ace of club

P.T.O.



## SECTION – C

Answer any three questions. Each question carries fourteen marks. (3×14=42)

7. From the following data of the marks obtained by 10 students in Accounts and Statistics. Calculate Pearson's correlation.

|                                  |    |    |    |    |    |    |    |    |    |    |
|----------------------------------|----|----|----|----|----|----|----|----|----|----|
| <b>Roll No :</b>                 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |
| <b>Marks in :<br/>Accounts</b>   | 20 | 25 | 60 | 45 | 80 | 28 | 55 | 65 | 30 | 75 |
| <b>Marks in :<br/>Statistics</b> | 25 | 50 | 55 | 56 | 60 | 70 | 72 | 78 | 80 | 63 |

8. The heights (in cms) of a group of father's and son's are given below :

|                                 |     |     |     |     |     |     |     |     |     |     |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Height of :<br/>father's</b> | 158 | 166 | 163 | 165 | 167 | 170 | 167 | 152 | 177 | 181 |
| <b>Height of :<br/>son's</b>    | 163 | 158 | 167 | 170 | 160 | 180 | 170 | 175 | 172 | 175 |

Find the lines of regression and estimate the height of son when the height of father is 164cm.

9. Fit a straight line trend to the following by the method of least squares. Assuming that the same rate of changes continues, state what would be the estimated earning for the year 2016. Also show actual and trend lines on a graph.

|                                  |      |      |      |      |      |      |      |      |
|----------------------------------|------|------|------|------|------|------|------|------|
| <b>Year :</b>                    | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| <b>Earnings :<br/>(in lakhs)</b> | 38   | 40   | 65   | 72   | 69   | 60   | 87   | 95   |

10. You are required to find out the number of workers falling within Rs. 250 and Rs. 350.

| <b>Earnings for daily</b> | <b>Number of workers</b> |
|---------------------------|--------------------------|
| Up to 100                 | 50                       |
| Up to 200                 | 150                      |
| Up to 300                 | 300                      |
| Up to 400                 | 500                      |
| Up to 500                 | 700                      |

11. Estimate the production for the year 2004 and 2006 with the help of the following table using Binomial Expansion method.

|                     |      |      |      |      |      |      |      |
|---------------------|------|------|------|------|------|------|------|
| <b>Year :</b>       | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| <b>Production :</b> | 200  | 220  | 260  | ?    | 350  | ?    | 430  |

(in '000' tones)