

Bachelor of Commerce Part - I Examination: December 2017
(Centre of Distance Education)

Day & Date	Part	Subject Name	Time	Code	Marks
Saturday 30/12/2017	I	Statistics	10.30 AM to 01.30 PM	4108	100

Instructions: 1) Attempt any five questions from both the sections, selecting at least 2 from each section
2) Figures to the right hand indicate marks.
3) Use of simple calculator is allowed.
4) Graph papers will be provided in request.

Section – I

- Q.1** **A)** Solve L.P.P. graphically. **08**
Maximize: $P = 6x + 8y$
Subject to $2x + y \leq 8$
 $x + 3y \leq 9$
and $x \geq 0, y \geq 0$
- B)** Find the slope of the line passing through the points (6, 5) and (3, 8). **05**
- C)** Find the equation of the line having slope $\frac{2}{3}$ and passing through the points (3, -4). **07**
- Q.2** **A)** Find the number of words that can be formed by considering all possible permutations of the letters in the word "FATHER". How many of these words beginning with 'F' and ending with 'R' be formed? **08**
- B)** ${}_{3P_2} + {}_{6P_5}$ Find the value. **05**
- C)** The age of 2 persons are at present in the ratio of 7:2, 3 years ago their ages were in the ratio of 6:1, find their present age. **07**
- Q.3** **A)** If three angles of a triangle are in the ratio 5:4:1 find these 3 angles in degree. **05**
- B)** $\frac{12}{10} : \frac{6}{7} : \frac{8}{36} : \frac{5}{x}$ Find value of x . **07**
- C)** A Saree is marked at price 3827. But it is sold at a price of Rs. 3272. Find the rate of discount allowed by the seller. **08**
- Q.4** **A)** An agent gets $8\frac{1}{2}\%$ commission on the total sales and an additional $2\frac{1}{2}\%$ commission for sales in excess of Rs. 15,000/- . What will be his total commission for the total turnover of Rs. 22,500/-? **08**

- B)** A person buys a Car for Rs. 1,52,000; after a year he sells it at Rs. 1,45,000. Find the loss in percentage. **06**
- C)** An article which costs Rs. 500 is sold at 10% profit. What is the selling price? **06**
- Q.5 A)** If $A = \begin{bmatrix} 3 & 5 & 9 \\ 2 & 8 & 6 \end{bmatrix}$ **06**
 $B = \begin{bmatrix} 5 & 3 \\ 2 & 8 \end{bmatrix}$
Find $[AB]$
- B)** Find the value of determinants **06**
 $|A| = \begin{vmatrix} 2 & 6 & 1 \\ 0 & 3 & 0 \\ 5 & 2 & 4 \end{vmatrix}$
- C)** Solve the following equations by Cramer's Rule. **08**
 $x - 2y + 3z = 1$
 $3x - y + 4z = 3$
 $2x + y - 2z = 1$

Section – II

- Q.6 A)** Represent the data by Multiple Bar Diagram. **08**
- | States | Production in (Rs. '000) | | |
|---------------|--------------------------|-------|-------|
| | Rice | Wheat | Jowar |
| Maharashtra | 50 | 45 | 75 |
| Punjab | 25 | 12 | 45 |
| Rajasthan | 75 | 30 | 25 |
| Gujarat | 60 | 20 | 15 |
| Uttar Pradesh | 80 | 15 | 60 |
- B)** Draw O give curve from the following data. **08**
- | Marks in Accounts | No. of Students |
|-------------------|-----------------|
| 0-10 | 8 |
| 10-20 | 12 |
| 20-30 | 5 |
| 30-40 | 15 |
| 40-50 | 18 |
| 50-60 | 7 |
- C)** Different types of Bar diagram? Explain. **04**

- Q.7 A)** Calculate mean, Median and mode from the following. **09**

Marks	Students
0-10	3
10-20	2
20-30	7
30-40	6
40-50	10
50-60	8
60-70	4

- B)** Calculate Quartile deviation. **07**

5-10	6
10-15	8
15-20	17
20-25	21
25-30	15
30-35	11
35-40	2

- C)** What are merits and demerits of median? **04**

- Q.8 A)** Calculate mean deviation from mode. **09**

Weekly Expenditure in Rs.	No. of families
50-70	20
70-90	60
90-110	70
110-130	40
130-150	10

- B)** Find combined standard deviation. **07**

$$\begin{array}{lll} n_1 = 70 & \bar{X}_1 = 75 & \sigma_1 = 4 \\ n_2 = 90 & \bar{X}_2 = 82 & \sigma_2 = 7 \end{array}$$

- C)** Calculate the range for the following data giving the daily sales of a shop 160, 130, 125, 127, 143, 150, 155. **04**

- Q.9 A)** Calculate the coefficient of correlation between advertising expenditure (in 1000 Rs) and actual Sales (in 1000 Rs) given below. **07**

Advt. Expenses	Sales
3	11
7	16
4	9
2	4
1	7
4	6
1	3
2	8

- B)** Find Raul correlation coefficient between x and y. **07**

x	38	39	40	42	45	39	40
y	46	52	33	49	55	54	57

- C)** Given the following data find the two regression equations. **06**

$$\bar{X} = 3, \bar{Y} = 5, \sigma_x = 2, \sigma_y = 6, r = 0.9$$

- Q.10 A)** From the following data find 3 yearly moving averages. **08**

2001	12
2002	15
2003	08
2004	26
2005	35
2006	14
2007	5
2008	33
2009	54
2010	13

- B)** Construct the Fishers Index numbers from the following data. **08**

Commodity	2016		2017	
	Price	Quantity	Price	Quantity
A	4	25	5	22
B	7	4	11	4
C	8	15	9	15
D	8	20	11	17

- C)** Merits and demerits of method of moving averages. **04**