University of the Punjab
Part I 2017 2nd Annual Examination ADC/BCOM
Subject: Business Statistics & Mathematics
Paper: BC: 301
Time Allowed: 3 Hours Maximum Marks: 100

Composed by Iftikhar Ali Lecturer Statistics, Finance & Accounting

NOTE: Attempt any FIVE questions using proper method. All questions carry equal marks. Attempt at least TWO questions from each section.

Section I

Q.1: From the following frequency distribution find Mean, Median, Mode and Coefficient of Variation.

Weekly Earnings in Rs.	No. of Workers
30—39	6
40—49	10
50—59	11
60—69	12
70—79	18
80—89	8

Q.2: From the following data calculate Co-efficient of correlation, regression line Y on X and show that $\sum(Y - \hat{Y}) = 0$

X	60	72	73	63	83	80	66	66	74	62
Y	40	52	43	49	61	58	44	58	50	45

Q.3: The Price and Quantities of four commodities in years 2012 and 2015

Year	A	B	C	D

	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity
2012	10	25	13	21	4	10	9	20
2015	9	27	12	22	3	14	7	15

Compute Laspeyre's, Paasche's, Fisher's and Marshall's index numbers of prices for 2015.

Q.4: A population consists of five numbers 7, 9, 11, 13 and, 15. Take all the possible samples of size 2, without replacement from this population. Find the mean of all samples. From sampling distribution · of these sample means:

. **Calculate:** ·
(i) The mean and standard deviation of the population
(ii) The mean and standard error of the sampling distribution of *X*.
(iii) Verify the results.

(i) $\mu_{\bar{x}} = \mu$

(ii) $\sigma_{\bar{x}}^2 = \frac{\sigma^2}{n}\left[\frac{N-n}{N-1}\right]$

Section II

Q.5: Solve by Crammer's rule

$$x + y + z = 6$$
$$x + y + z = 0$$
$$2x + 3y - 2z = 2$$

Q.6:

(a) Solve by any method $4x^2 + 3x - 7 = 0$

(b) Solve for x and y:

$$6x - 5y + 70 = 0$$
$$4x = 3y - 44$$

Q.7: (a) Find the sum of infinite Geometric series 5 + 5/6 + 5/36 + ... ∞
(b) Which term of the sequence 31, 29, 27, ... is 3.

Q.8: (a) What principal will amount to 12760 at 10.85% in 5 months?
(b) At what rate Rs.71800 amount toRs.305000 in 22 months?