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University of the Punjab
Part I Annual 2020 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, standard deviation and coefficient of variation

Weekly Earnings Rs.	No of Workers	Weekly Earnings Rs.	No of Workers
20—24	1	45—49	9
25—29	4	50—54	2
30—34	8		
35—39	11		
40—44	15		

Q.2: From the following data calculate Coefficient of correlation, regression line Y on X and trend values. Also 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	21	3	14	7	15

Compute Laspeyre's, Paasche's, Fisher's index number of prices for 2015

Q.4: A population consists of five numbers 0, 2, 4, 6, 8 and 10. Take all 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.

Section II
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Q.5: ***Solve by Matrices***

$$2x + y = \frac{1}{2}$$
$$2x + 4y = 7$$

Q.6:

(a) The sum of two numbers is 64, their difference is 10. Find the numbers.

(b) Solve the following simultaneous equations.

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

Q.7: **(a)** Find the sum of infinite Geometric series 5 + 5/6 + 5/36 + …..∞

(b) Which term of the sequence 8, 1.6, 0.32, ……is 0.00256.

Q.8: The difference between simple and compound interest on a certain sum is Rs. 250 for two years at 5% p.a. Find the sum.