University of the Punjab
Part I Annual 2019   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.

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Section I

Q.1: Following is the frequency distribution. Calculate Bowley's Coefficient of Skewness.

Scores	0—10	10—20	20—30	30—40	40—50	50—70	70—100
No. of matches (f)	3	7	12	18	31	24	21

Q.2: The following data given the ages and blood pressure of 10 women.

Age	56	42	36	47	49	42	60	72	63	55
Blood Pressure	147	125	118	128	145	140	155	160	149	150

(a) Find correlation coefficient between age and blood pressure.
(b) Calculate two regression coefficients

Q.3: Calculate price index numbers using Laspeyre's, Paasche's, Fisher and Marshall's formula for 2011 taking 2009 as base for the following data:

Year	Wheat		Rice		Maize	
	Price	Quantity	Price	Quantity	Price	Quantity
2009	3.8	29	2.9	3	6.5	12
2011	5.8	24	4.5	2.5	7.8	14

Q.4: Draw all possible samples of size 2 **with** replacement from the population 2,4,6,8,10 make sampling distribution and show that:

(i) $\quad \mu\overline{x} = \mu$

(ii) $\quad \sigma\overline{x}^2 = \dfrac{\sigma^2}{n}$

Section II
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Q.5: *If* $A = \begin{bmatrix} 2 & -3 & 5 \\ K & 4 & 6 \\ 2 & 0 & 8 \end{bmatrix}$ *is a singular Matrix then find K?*

Q.6:
(a) If the sum of two consecutive numbers is 27 find the numbers?
(b) Solve the equation: $2x = 3 - 8x$

Q.7: (a) Which term of the sequence, 16, 8, 4, 2, ...is 1/16?
(b) Find the first term of Geometric progression whose 6th term and 7th term are 32/9 and 64/27 respectively.

Q.8: A tract of land is leased in perpetuity at Rs12500 due at the beginning of each month if worth 13.5% compounded monthly. What is the value of lease?