University of the Punjab
Part I Annual 2016   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 From the following frequency distribution find Median, Mode and coefficient of skewness:

Weekly Earnings in Rs.	No. of Workers
0-50	3
50-100	7
100-150	12
150-200	18
200-250	21
250-300	12

Q.2. The price and quantities of four commodities in years 2005 and 2012

Year	A		B		C		D	
	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity
2005	17.00	135	19.36	214	15.18	191	99.32	161
2012	27.52	369	29.59	247	14.46	227	96.17	186

Compute Laspeyre's, Paasche's, Fisher's index number of prices for 2012

Q.3 From the following data calculate co-efficient of correlation, regression line Y and X and also comment on answer:

X	16	72	73	63	83	80	66	66	74	62
Y	40	43	43	49	61	58	44	58	50	45

Q.4. A population consists of five numbers 8, 12, 16, 18 and 20. 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 Results.

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

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

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Section II

Q.5: (a) Find the sum of ·infinite Geometric series $5 + 5/6 + 5/36 + \ldots\ldots\ldots\infty$.
(b) Which term of the sequence 16, 8, 4, 2, ... is 1/16.

Q.6: a) Solve: $\sqrt{5x+4} - \sqrt{3x+1} = 1$
b) Solve for x and y:
$5x + 4y = 7$
$3x - 4y = 17$

Q. 7: If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & -1 & 2 \\ 2 & 3 & -1 \end{bmatrix}$ **then obtain** A^{-1}

Q.8: What semi-annual payment is required to pay off a loan of Rs. 800,000 in ten years if interest is 16% compounded semi-annually?