University of the Punjab
Part I Annual 2015 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 Compute Arithmetic Mean, Median, Variance and Pearson's Coefficient of Skewness.

Monthly Income Rs.	No of Families	Monthly Income Rs.	No of Families
110-119	2	160-169	18
120-129	4	170-179	13
130-139	17	180-189	6
140-149	28	190-199	5
150-159	28	200-209	2

Q.2: (a) Two coins are tossed. Show that the probability of getting at least one head is ¾.
(b) The results of the use of two drugs in the treatment of a certain disease are as follows:

	Recovered	**No Change**	**Died**
Drug-A	40	18	12
Drug-B	50	8	7

Test association using Chi-Square Statistics. Tabulated value of Chi-Square for 2 degree of freedom at 5% level of significance is 5.99

Q.3. From the following data, compute index number for 2003 taking the price of 2002 as base:

Use Laspeyre's, Paasche's, Fisher's and Marshall's formulae.

Year	A		B		C		D		E	
	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity
2002	9	10	6	80	3	17	9	20	6	30
2003	11	5	9	100	2	20	7	15	8	40

Q.4. A population consists of six numbers 3, 6, 9, 12 and 18. Consider all the possible samples of size 2 which can be drawn without replacement from this population. Calculate:

(i) The Mean of Population

(ii) The Standard Deviation of Population

(iii) The Mean of the Sampling Distribution of Means

(iv) The Standard Error

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Section II

Q.5: $If\ A = \begin{bmatrix} 13 & 2 & -6 \\ -3 & 9 & 0 \\ 8 & 4 & -1 \end{bmatrix}, B = \begin{bmatrix} 11 & -2 & 6 \\ 9 & -14 & 3 \\ -4 & 8 & 5 \end{bmatrix}\ Obtain\ (i)A + 2B\ (ii)3A - 4B\ (iii)AB$

Q.6: **(a)** Solve the following simultaneous equations:

$$\frac{2}{x} + \frac{3}{y} = 2, \qquad \frac{8}{x} + \frac{9}{y} = 7$$

(b) If a car travelled 5 kilometers an hour faster it would take one hour less to travel 210 kilometers. What is the speed of the car and what time does it take?

Q.7 A drilling company contracted to drill a well at a cost of Rs. 30 for the first foot, Rs.35 for the second foot, Rs. 40 for the third foot and so on. How deep a well can be drilled for Rs. 3,075.

Q.8: Mr. Ahmed deposits Rs. 500 at the end of each quarter. So, as to accumulate a sum of Rs. 10,000 to purchase a refrigerator. If the interest rate is 5% per annum, compounded quarterly. How many such quarterly deposits he will have to make?

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