UNIVERSITY OF THE PUNJAB

PART – I   S/2016
Examination:- B. Com.

Roll No. ....

Subject: Business Statistics & Mathematics
PAPER: BC-301

TIME ALLOWED: 3 hrs.
MAX. MARKS: 100

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

SECTION-I

1. Find the line of regression of Y on X and X on Y and draw regression line of Y on X from the given data.

x	5	7	6	12	17	19	20	29
y	22	14	11	9	9	8	6	2

2. Calculate co-efficient of mean deviation about mean and co-efficient of mean Deviation about median.

Classes	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 – 49
f	13	31	49	78	102	110

3. Draw all possible samples of size 3 from the population 0,3,6,9,12,15 without replacement. Make sampling distribution and show that (i) $\mu_{\bar{x}} = \mu$ (ii) $6\frac{2}{\bar{x}} = \frac{6^2}{n}\frac{N-n}{N-1}$

4. Calculate Price Index Numbers using Laspeyre's, Paasche's, Fisher's and Marshall's formulae for 2003 taking 2002 as base.

Years	A		B		C		D	
	Price	Quantity	price	Quantity	Price	Quantity	Price	Quantity
2002	9	10	6	80	3	17	9	20
2003	11	5	9	100	2	20	7	15

SECTION II

Q.5   If $A=\begin{bmatrix} 1 & -1 & 2 \\ 0 & 3 & 1 \end{bmatrix}$ and $B=\begin{bmatrix} 2 & 3 & 0 \\ 1 & 2 & -1 \end{bmatrix}$, Show that

      a) A+B   **b)** B-A   **c)** whether AB=BA

Q.6   **a)** Mr. Ahmad want to open an account paying 16.2% compounded monthly for his son's college education. How much Mr. Ahmad has to deposit (principle amount) if ordinary annuity payments of Rs.3000 are to be drawn out of account for 6 years.

    b) How long will it take for money to double at 16% p.a. compounded semi-annually?

Q.7   **a)** Find first term and sum up to 10th term of the geometric progression whose 6th and 7th terms are 64 and 128.

    b) A laptop company produces 7000 laptops in its 4th year of existence and 10,000 laptops in 6th year. What is the production of the company in the first year?

Q.8   **a)** Solve the following simultaneous equations.

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

    b) Solve the following equation by factorization.

$$3x^2 - x = 8$$