UNIVERSITY OF THE PUNJAB

Associate Degree in Commerce / B.Com. Part – I

2nd Annual – 2020 & Annual – 2021

Subject: Business Statistics & Mathematics **Paper: BC-301**

Roll No. .....

Time: 3 Hrs. Marks: 100

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:- (a) Define the following:

(i) Geometric mean (ii) Quartiles (iii) Mean deviation (iv) Variance

(v) Coefficient of variation

(b) Calculate Median and Mean deviation from median from the following data:

Class	f	Class	f
20 – 24	14	40 – 44	102
25 – 29	32	45 – 49	76
30 – 34	49	50 – 54	34
35 - 39	78	55 – 59	12

Q # 2:- (a) Define the following:

(i) Coefficient of correlation (ii) Dependent variable (iii) Method of least square

(iv) Perfect positive correlation

(b) Calculate coefficient of correlation between U and V where $U = \frac{X - 400}{100}$ and $V = \frac{Y - 40}{10}$.

Also find the regression line X on Y. Find the value of X when $Y = 80$

X	400	200	700	100	500	300	600
Y	60	30	70	10	40	20	50

Q # 3:- (a) For the following probability distribution:

X	0	1	2	3	4	5
P(x)	0.1	0.3	0.2	A	0.2	0.05

Calculate: (i) A (ii) E(X) (iii) $E(X^2)$ (iv) Var(X)

P.T.O.

(b) A study is made to determine the possible relationship between religions affiliation and attitude toward a certain proposed piece of legislation. The data is as below:

Attributes	For	Against	Indifferent
Catholic	60	30	20
Jewish	30	60	10

Apply the chi – square test at 5% level of significance.

(The table value of chi – square for 2 d.f. at 5% level of significance = 5.991)

Q # 4:- Draw all possible samples of size 3 without replacement from the population 3, 6, 9, 9, 12 and 15. Form a sampling distribution of mean. Find mean, variance and standard deviation of the sampling distribution of means. Also find the mean, variance and standard deviation of the population. Show that mean of the sampling distribution of means is equal to the population mean.

Section - II

Q # 5:- **(a)** A company paid Rs. 2400 for heat and power during march. If cost of heat was Rs. 800 less than three times the cost of power. How much was the cost of heat?

(b) Solve $2x^2 + 13x + 15 = 0$ by method of completing squares.

Q # 6:- ~~**(a)** Solve the following system of equations:~~

$$1.5x + 0.8y = 1.2$$

$$0.7x + 1.2y = -4.4.$$

(b) If $A = \begin{bmatrix} 2 & -3 & 5 \\ k & 4 & 6 \\ 2 & 0 & 8 \end{bmatrix}$ is Singular matrix, then find k.

Q # 7:- The first term of an A.P. is 5, the last term 45 and sum 400. Find number of terms and common difference in the series.

Q # 8:- You want to receive Rs. 6000 at the end of every three months for five years. Interest is 17.6% compounded quarterly.

(a) How much would you have to deposit at the beginning of the five years period?

(b) How much of what you receive is interest?