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Business Statistics & Mathematics

Punjab University BCOM/ADP Commerce I Paper 2009

Time: 3 Hours **Max. Marks: 100**

Note: Attempt any five questions in all taking two questions from each section. Question No 1 is compulsory. All questions carry equal marks.

Section I

Q.1 For the following data obtain the:
(a) Mode **(b)** Median **(c)** Coefficient of Variation

Weekly Wages	30--39	40--49	50--59	60--69	70--79	80--89	90--99
No of Workers	6	10	11	12	32	18	8

Q.2 (a) Find the chain indices from the following price relatives of four commodities using the Geometric Mean as an average.

Years	**A**	**B**	**C**	**D**
1951	81	70	119	55
1952	62	54	128	52
1953	104	87	111	100
1954	93	75	154	96
1955	60	43	165	88

(b) A card is drawn from a well shuffled pack of 52 playing cards. What is the probability that it is:
(i) Black Card **(ii)** A Face Card

Q.3 A population consists of four values 2, 4, 6, 10. Take all possible sample of size n = 2 without replacement. Find the mean of each sample. From a frequency table of sample means and calculate mean and variance. Also verify that:

(i) $\mu_{\bar{x}} = \mu$ $\quad (ii)\sigma_{\bar{x}}^2 = \frac{\sigma^2}{n}\left[\frac{N-n}{N-1}\right]$

Q.4 (a) Discuss the Accosiation among 1000 school boys between the general ability and their mathematical ability from the following data. Using level of significance be 5%.

Mathematical Ability	**General Ability**			
	Good	**Fair**	**Poor**	**Total**
Good	44	22	4	70
Fair	265	257	178	700

Poor	41	91	98	230
Total	350	270	280	1000

(b) Find Regression Coefficient of the following case:

$\sum x = 17.6, \sum y = 32.8, \sum xy = 94.7, \sum x^2 = 49.64, \sum y^2 = 182, n = 8$

Section II

Q.5 (a) Solve the following equation by any appropriate method:
$\sqrt{5x+4} - \sqrt{3x+1} = 1$
(b) Solve the equation for x:

$$\frac{x+1}{3x} = \frac{1}{x} - \frac{1}{3}$$

Q.6 (a) Solve the following system of equations:
2x + 6y + 4z = 320
6x + 6y + 4z = 480
3x + 2y + 4z = 192

(b) The 10^{th} term of an Arithmetic Progression is 20 and 20^{th} term is 40. Find the 7^{th} term.

Q.7 (a) If the difference between the simple and compound interest for 3 year at 5% is Rs. 61. Find the Principal amount

(b) Find the accumulated value of Rs. 5000 invested at the end of each quarter for 5 years at 8% compounded quarterly.

Q.8 Give short answers of the following and unnecessary details will be penalized.

i. Define Matrix
ii. Define a Common Ratio.
iii. Define Compound Interest.
iv. Define Annuity Due.
v. Define the population.
vi. What is the difference between sample and sampling?
vii. Define the term correlation.
viii. Define Standard Deviation.
ix. What do you understand by Measures of Central Tendency?
x. Define Weighted Mean.

The End