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BBC-1605 Seat No._____

B. B. A. (Sem. II) Examination

April / May – 2014

Business Statistics - I

(CC-204)

Time : **3** Hours] [Total Marks : **70**

1 (a) Explain the types of data collection methods. **6**

(b) Explain the different types of chart which use in statistics. **5**

2 (a) Explain the importance of statistics in business. **3**

(b) From the following data compute arithmetic mean by dierct method : **4**

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of Students	5	10	25	30	20	10

(c) Calculate median from the following data : **5**

Age	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55	55 – 60
Frequency	30	90	90	170	170	120	80	50

OR

2 (a) Explain the types of frequency distribution. **3**

(b) Calculate median from the following data : **4**

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Freq.	3	5	7	10	12	15	12	6	2	8

(c) Calculate mean from the following data : **5**

X	5	10	12	20	25	30	35	40	45	50
f	20	43	75	76	42	45	39	9	8	6

3 (a) From the prices of shares of X and Y below find out which is more stable in value : **6**

X	35	54	52	53	56	58	52	50	51	49
Y	108	107	105	105	106	107	104	103	104	101

(b) Karl Pearson's coefficient of correlation between two variables X and Y is 0.35, their coveriance is 10.5. If the variance of X is 16, find the standard deviation of Y. **5**

OR

3 (a) For a distribution of 100 observations, the sum of the deviations from 4 cm is -11 cm and the sum of the squares of those deviations is 257 sq. cm. Find the coefficient of variation. **6**

(b) The following data are obtained for two variables X and Y : **5**

$$n = 25, \sum X = 125, \sum Y = 100, \sum X^2 = 650, \sum Y^2 = 460$$

and $\sum XY = 508$.

It was however discovered at the time of checking that two pairs were strongly taken as (6,14) and (8,6) instead of (8,12) and (6,8). Prove that the correct value of the correlation coefficient should be 2/3.

4 (i) The following data are given for marks in Statistics (X) and Economics (Y) at a certain examination : 8

	Statistics	*Economics*
Mean Marks	39.5	47.5
Variance of Marks	116.64	282.24

Correlation of coefficient between marks in statistics and economics = 0.42

(a) The two regression equation.

(b) The value of Y for X=50.

(c) The value of X for Y=30.

(ii) Given that $r_{12} = 0.6$, $r_{13} = 0.7$ and $r_{23} = 0.65$, determine $R_{1.23}$ and $r_{12.3}$. 3

5 (a) From the following data, prepare the index number by fixed base method and chain base method.

Year	1995	1996	1997	1998	1999	2000
Price	18	22	26	31	36	40

(b) Calculate 7-yearly moving average of the data given below to obtain trend values : **6**

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979
Annual Figure	130	114	122	148	138	126	174	155	160
Year	1980	1981	1982	1983	1984				
Annual Figure	180	170	188	200	180				

OR

5 (a) Find Laspeyre's Paasche's, Fisher's, Marshal - Edgewoth's and Dorbin-Bowley's index number for the following data : **6**

Commodity	BaseYear		Current Year	
	Price	Quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

(b) Estimate trend by four-yearly moving average of the data given below. Also find short term variations. **6**

Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Profit	50	36.5	43	44.5	38.9	38.1	32.6	38.7	41.7	41.1	33.8

6 Calculate any two : **12**

(i) Fit a straight line by the method of Least square and calcualte the trend values for the following data :

Year	1990	1992	1993	1994	1995	1996	1999
Profit	140	144	160	152	168	176	180

(ii) Fit a second degree parabolic trend by the method of least squares to the following data and calculate trend values :

Year	1990	1991	1992	1993	1994
Profit	10	12	13	10	8

(iii) Calculate seasonal indices by the link relative method for the following data :

Year	*Q*1	*Q*2	*Q*3	*Q*4
1993	46	44	50	45
1994	48	58	60	50
1995	52	66	56	60
1996	66	80	75	70