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B.B.A. (Semester II) EXAMINATION, 2018

BUSINESS STATISTICS

(2013 PATTERN)

Time : Three Hours

Maximum Marks : 80

N.B. :— (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Use of calculator is allowed.

(iv) Carrying/Using mobile phone is strictly prohibited.

1. Solve any *four* of the following : [4×4=16]

(1) State the requirements of a good measure of central tendency.

(2) Draw histogram for the following data :

Class	Frequency
0—10	5
10—20	8
20—30	15
30—40	10
40—50	6

(3) Calculate standard deviation for the following data :

36, 15, 25, 10, 14.

P.T.O.

- (4) Explain stratified random sampling with illustration.
- (5) Average marks of 30 students were 40. Later on it was found that a score 47 was misread as 74. Find the correct average.
- (6) Write requirements of a good sample.

2. Solve any *four* of the following : [4×4=16]

- (1) Explain the scope of statistics in industry.
- (2) Represent the following data using a suitable diagram :

Mode of Transport	Number of Passengers
Bus	1250
Train	2250
Airplane	100
Private Vehicle	600
Truck	500

- (3) Calculate median for the following data :

Marks	Number of Students
0—10	1
10—20	3
20—30	10
30—40	4
40—50	2

Find combined standard deviation :

Group I — $\bar{X}_1 = 2100$; $n_1 = 100$; $\sigma_1 = 10$

Group II — $\bar{X}_2 = 1500$; $n_2 = 200$; $\sigma_2 = 12$

- (4) What are the advantages of sampling over census method ?

- (5) Calculate upper quartile and lower quartile for the following data :

26, 30, 35, 5, 6, 20, 40, 45, 11, 18, 15, 49.

- (6) Calculate mean, median and mode for :

12, 13, 15, 12, 17, 12, 13.

3. Solve any *four* of the following : [4×4=16]

- (1) Write merits and demerits of mean.
(2) Answer the questions using the following frequency distribution of age of 50 citizens :

Age (in years)	No. of Citizens
Below 30	3
31—40	9
41—50	10
51—60	18
61—70	8
71—80	2

- (i) State the types of classification.
(ii) State the open end class.
(iii) State the class mark of third class.
(iv) State the class boundaries of fourth class.
(3) The regression equations are $3X + Y = 5$ and $2X - Y = 0$. Find :
(i) Arithmetic mean of X and Y
(ii) Correlation coefficient between X and Y.
(4) Write a note on Cost of Living Index Number.

- (5) From the following data find the five yearly moving average :

Year	Production (Million Tons)
2000	16
2001	14
2002	20
2003	18
2004	22
2005	17
2006	19
2007	21
2008	20

- (6) Construct the price index number for 2003 taking the year 2000 as base year :

Commodity	Price in year 2000	Price in year 2003
A	60	80
B	50	60
C	70	100
D	120	160
E	100	150

4. Solve any *four* of the following : [4×4=16]

- (1) Calculate coefficient of correlation for the following data :

X	Y
2	4
3	7
4	8
5	9
6	10
7	14
8	18

- (2) State the assumptions of Karl Pearson's coefficient of correlation.
- (3) The following information is given about advertising and sales :

	Advertising (X)	Sales (Y)
Mean	10	90
S.D.	3	12

Also, coefficient of correlation between X and Y is 0.8. Find the two regression lines.

- (4) What is classification ? Explain inclusive and exclusive classification.
- (5) What is time series ? Explain the components of time series.
- (6) Compute the weighted aggregative price index numbers for 1981 with 1980 as base year using Paasche's Index Number :

Commodity	Process		Quantities	
	1980	1981	1980	1981
A	10	12	20	22
B	8	8	16	18
C	5	6	10	11
D	4	4	7	8

5. Solve any *two* of the following : [2×8=16]

- (1) What is Index Number ? Explain the problems in the construction of Price Index Number.

- (2) Obtain the regression equation of Y on X by the least square method for the following data :

X	Y
1	9
2	9
3	10
4	12
5	11

Also estimate the value of Y when X = 10.

- (3) Calculate Price Index Number for the following data for the year 2007 taking 2006 as base year using :
- (i) Laspeyre's Index Number
- (ii) Fisher's Index Number.

Commodity	2006 (p_0)	2006 (q_0)	2007 (p_1)	2007 (q_1)
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	10
D	20	20	20	15