

Exam. Code : 108501

Subject Code : 2717

B.Com. Semester—I

BCG-106 : BUSINESS STATISTICS

Time Allowed—3 Hours]

[Maximum Marks—50

SECTION—A

Note :—Attempt **ALL** questions. Each question carries
1 mark.

1. (a) What is Fisher's ideal index number ? Why is it so called ?
- (b) What are the components of Time Series ?
- (c) Define Multiple Regression analysis.
- (d) What do you mean by 'Mutually Exclusive' events ?
- (e) Give the classical definition of Probability.
- (f) Differentiate Correlation and Regression.
- (g) What are the limitations of Statistics ?
- (h) Write any two characteristics of a good measure of dispersion.

- (i) What is the basic difference between weighted and unweighted Index number ?
- (j) Differentiate mean and median. Where each one of them is used ?

SECTION—B

Note :—Attempt any **TWO** questions. Each question carries **10** marks.

- 2. Define Statistics and discuss its utility as a managerial tool. Also discuss the ‘distrust’ of Statistics.
- 3. The following table gives the frequency distribution of expenditure on education per family per month among middle class families in two cities :

Expenditure (in, 00 Rs.)	No. of Families	
	City A	City B
3-6	28	39
6-9	292	284
9-12	389	401
12-15	212	202
15-18	59	48
18-21	18	21
21-24	2	5

- (i) Find the arithmetic mean and standard deviations of the expenditure at both cities.
- (ii) Find out which of the two cities shows greater variability.
- 4. A departmental store gives in-service training to its salesman which is followed by a test. It is considering whether it should terminate the service of any salesman who does not do well in the test. The following data

gives the test scores and sales made by nine salesmen during a certain period :

Test Scores : 14 19 24 21 26 22 15 20 19

Sales ('000 Rs.): 31 36 48 37 50 45 33 41 39

Calculate the coefficient of correlation between the test scores and the sales. Does it indicate that the termination of services of low test scores is justified ? If the firm wants a minimum sales volume of Rs. 30,000, what is the minimum test score that will ensure continuation of service ? Also estimate the most probable volume of a salesman making a score of 28.

5. The following bi-variate frequency distribution relates to sales turnover (in Rs. Lakhs) and money spent on advertisement (in 1000' Rs.). Obtain the two regression equations.

Sales Turnover (in Rs. Lakhs)	Advertising Budget (in 1000' Rs.)			
	50-60	60-70	70-80	80-90
20-50	2	1	2	5
50-80	3	4	7	6
80-110	1	5	8	6
110-140	2	7	9	2

Estimate (i) the sales turnover corresponding to advertising budget of Rs. 1,50,000 and (ii) the advertising budget to achieve a sales turnover of Rs. 200 Lakh.

SECTION—C

Note :—Attempt any **TWO** questions. Each question carries **10** marks.

6. Explain Fisher's Time Reversal Test and Factor Reversal Test of Index Number Adequacy.

7. Construct index number of price from the following data by using Laspeyre's, Fisher's, Paasche's, Dorbish Bowley's and Marshall Edgeworth's Methods.

Commodity	2012		2013	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	15

8. Calculate seasonal indices by the method of link relative for the following data :

Quarter	Quarterly Figures for five years				
	2010	2011	2012	2013	2014
I	45	48	49	52	60
II	54	56	63	65	70
III	72	63	70	75	83
IV	60	56	65	72	86

9. (a) Explain the various laws of Probability. 5
 (b) The odds against X student solving a Business Statistics problem are 8 to 6, and odds in favour of student Y solving the problem are 14 to 16.
 (i) What is the chance that the problem will be solved if they both try independently of each other ?
 (ii) What is the probability that none of them is able to solve the problem ? 5