

Exam. Code : 107302

Subject Code : 2021

B.Com. (Prof.) Semester—II

BUSINESS ANALYTICAL TECHNIQUES—II

Paper—BCP-206

Time Allowed—3 Hours] [Maximum Marks—50

SECTION—A

Note :— Attempt any TEN questions. Each question carries 1 mark.

1. (i) What do you mean by 'positive' and 'negative' Attributes ?
- (ii) What are the properties of a 'Normal Distribution' ?
- (iii) List down any two sources (each) for collection of data relating to Population and National Income.
- (iv) What do you mean by Mutually Exclusive and Exhaustive events ?
- (v) State the important properties of a Binomial Distribution.
- (vi) What are the limitations of using 'Judgment' Sampling ?

- (vii) When are two attributes said to be 'Independent' ?
- (viii) What are the properties of 'Regression Coefficient' ?
- (ix) If the coefficient of correlation is 0.7, then what is the coefficient of determination ?
- (x) Differentiate between Interpolation and Extrapolation.
- (xi) What do you mean by Yule's Coefficient of association ?
- (xii) State the 'Classical Approach' to probability.

SECTION - P

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

2. (a) What is meant by 'correlation' ? Distinguish between positive, negative and zero correlation.
- (b) The following table gives indices of industrial production and number of registered unemployed people (in lakh). Calculate the correlation coefficient :
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|--|-----|
| | 5.5 |
|--|-----|

Year	Index of Production	Number of Unemployed
2005	100	15
2006	102	12
2007	104	13
2008	107	11
2009	105	12
2010	112	12
2011	113	19
2012	99	26

3. 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. Lakh)	Advertising Budget (in '000' 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.
4. (a) Find the missing value in the following (Use Binomial Method) :

X	Y
2	5.99
3	7.92
4	9.49
5	
6	12.53
7	14.07

- (b) What do you understand by Interpolation ? What are the underlying assumptions for the validity of various methods used for interpolation ?
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5. A financial analyst wants to find out whether inventory turnover influences any company's earnings per share (in per cent). A random sample of 7 companies listed

in a stock exchange was selected and the following data was recorded for each :

Company	Inventory Turnover (No. of Times)	Earnings per Share
A	4	11
B	5	9
C	7	13
D	8	7
E	6	13
F	3	8
G	5	8

Find the strength of association between inventory turnover and earnings per share. Interpret the findings.

SECTION—C

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

6. (a) 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 ?

(d) State the Multiplicative law of Probability.

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7. (a) When the first proof of 200 pages of a book of 5000 pages was read, the distribution of printing mistakes found are shown in the table. Fit a Poisson distribution to the frequency distribution of printing mistakes. Estimate the total cost of correcting the whole book by using the information given below :

Number of Mistakes per page	Frequency	Cost of Detection and Correction per page (Rs.)
0	113	1
1	62	1.5
2	20	2.5
3	3	3
4	1	3.5
5	1	4

- (b) The income of a group of 10,000 people was found to be normally distributed with a mean of

Rs. 1750 p.m. and standard deviation of Rs. 50. Show that of this group 95 per cent had income exceeding Rs. 1668 and only 5 per cent had income exceeding Rs. 1832. What was the lowest income among the richest 100 ? 5,5

8. "A good sample must be based on random selection." Explain. Also discuss the various methods of Random Sampling, giving examples.
9. Define Secondary data. Discuss the various sources of collecting Secondary Data relating to Industry.