

GLS UNIVERSITY
FACULTY OF COMMERCE (SMPIC)
B.COM. HONOURS
SEMESTER 1
SUBJECT: BUSINESS STATISTICS
ASSIGNMENT 2021

UNIT 1: INTRODUCTION TO STATISTICS & BUSINESS FORECASTING

Q.1 Write a short note on history and development of statistics.

Q.2 State and explain the characteristics of statistics.

Q.3 (A) Fit a straight line to the following data and forecast the production for the year 2022.

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Production ('tons)	75	86	38	90	96	108	124	140	150	165

(B) Taking $\alpha = 0.3$ and initial forecast as 30, determine sales forecasts using exponential smoothing method.

Year	2014	2015	2016	2017	2018	2019	2020
Sales	25	35	20	30	35	40	45

UNIT 2: MEASURES OF CENTRAL TENDENCY

Q.1 Define Geometric Mean and Harmonic Mean. Also state their merits and demerits.

Q.2 The combined mean of two groups is 13. The mean of the first group is 10 and the mean of the second group is 15. Find the proportion of observations in the two groups.

Q.3 Find mean, median, mode, harmonic mean and geometric mean of the following frequency distribution.

Marks	11	12	13	14	15
Number of students	9	8	15	12	6

UNIT 3: MEASURES OF DISPERSION

Q.1 State the characteristics of an ideal measure of dispersion.

Q.2 Find combined standard deviation from the following information:

Group	Number	Mean	Standard Deviation
I	40	10	1
II	60	15	2

Q.3 The marks obtained by 16 students are 20, 50, 72, 20, 53, 72, 34, 54, 75, 39, 59, 78, 42, 64, 88 and 60.

Find Range, Relative Range, Inter Quartile Range, Quartile Deviation(Semi Inter Quartile Range) and Coefficient of Quartile Deviation Mean Deviation, Coefficient of Mean Deviation, Standard Deviation, Variance, Coefficient of Standard Deviation and Coefficient of Variation for the observations

UNIT 4: CORRELATION ANALYSIS

Q.1 Write a short note on probable error and standard error.

Q.2 If for a pair of 23 observations, covariance between the variables x and y is 260 and the variance of x and y are 225 and 324 respectively. Find

1. Coefficient of correlation
2. Coefficient of Determination
3. Coefficient of Non Determination
4. Coefficient of Alienation
5. Explained Variance
6. Unexplained Variance
7. Probable Error
8. Standard Error

Q.3 Calculate coefficient of correlation by method of concurrent deviations from the data given below:

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
Supply	20	25	32	30	28	36	42	50	48

Price	50	53	57	59	55	49	58	62	60
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UNIT 5: REGRESSION ANALYSIS

Q.1 Explain the properties of regression coefficients in detail.

Q.2 The equation of regression line of y on x is $2y - x - 50 = 0$ and the equation of regression line of x on y is $3y - 2x - 10 = 0$. Find means of the variables x and y and correlation coefficient between them.

Q.3 Calculate the regression coefficient and obtain the lines of regression for the following data:

x	1	2	3	4	5	6	7
y	9	8	10	12	11	13	14

UNIT 6: ASSOCIATION OF ATTRIBUTES

Q.1 Define association of attributes. Also state the frequencies, their nature, count and order when three attributes are under study.

Q.2 In an examination, out of 270 candidates 200 were boys. 150 candidates were successful, out of them 90 were boys. Obtain Yule's coefficient of colligation Y and then find coefficient of association Q between girls and their success.

Q.3 For the following ultimate frequencies find (α) , (β) , (γ) , $(A\beta)$, (βC) , $(\alpha\gamma)$ and N .

$(ABC) = 70$	$(\alpha BC) = 71$
$(AB\gamma) = 80$	$(\alpha B\gamma) = 78$
$(A\beta C) = 65$	$(\alpha\beta C) = 82$
$(A\beta\gamma) = 69$	$(\alpha\beta\gamma) = 66$