

**BENGALURU CITY UNIVERSITY**

**Model Question Paper (NEP 2021)**

**First Semester B.Sc**

**Sub: STATISTICS**

**Title: BASIC STATISTICS-I**

**Time : 2 hrs**

**Max marks : 60**

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**Instructions: Answer any Eight sub-divisions from section A and any Three questions from section B .**

**SECTION A (24 marks)**

**I Answer any Eight questions from the following:**

**(8 x 3 = 24)**

1. Discuss the meaning & scope of Statistics.
2. Distinguish between classification and tabulation of data.
3. State the rules & types of classification
4. If the frequencies of the values , 0,1,2,...,n of a variable are the binomial coefficients, then find arithmetic mean.
5. Distinguish between absolute and relative measures of Dispersion. Also state the corresponding measures.
6. What is Scatter diagram? Draw neat sketches to show perfect positive and negative correlation
7. Define Karl-Pearson's co-efficient of correlation and show that it is independent of both change of origin and scale
8. What is regression? Write the regression equation of X on Y in terms of means, standard deviations and correlation coefficient.
- 9.State the properties of regression co-efficients and prove one of them.
10. Establish the relationship between multiple and partial correlation co-efficients.

**SECTION B (36 marks)**

**II Answer any Three questions from the following:**

**(12 x 3 = 36)**

- 11a) Describe the various steps that are taken in conducting a statistical survey
- b)What is a questionnaire? Mention the precautions necessary in drafting a good Questionnaire.
- c) Explain the construction of Histogram, frequency curve and frequency polygon.

**(4 + 4+4)**

12 a) Define Median and Mode.

b) State the properties of arithmetic mean and prove one of them.

c) Derive the expression for combined variance of two series.

**(2 + 4 + 6)**

13)a. Define moments. Explain, how the first four moments are used to describe the characteristics of a frequency distribution.

b) Explain Skewness and Kurtosis

c) With usual notations, prove that  $\beta_2 \geq 1$  where  $\beta_2$  is moment coefficient of kurtosis.

**(4+3 + 5)**

14)a)What is Scatter diagram? Draw neat sketches to show perfect positive and negative Correlation.

b) Derive Spearman's rank correlation coefficient.

c) Show that Karl-Pearson co-efficient of correlation lies between -1 & +1

**(3+ 5 + 4)**

15.a) (i) Explain the terms independence and association as applied to attributes.

(ii) Define Yule's co-efficient of association and co-efficient of colligation .

b) Obtain the equation to plane of regression of  $X_1$  on  $X_2$  and  $X_3$  .

c) Derive an expression for variance of the residue  $X1.23$

**(4+ 5 + 3)**

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**FIRST SEM SCHEME OF QUESTION PAPER**

**SCHEME:NEP**

Unit No.	Content	Hours of teaching	No. of questions		Total marks in the question paper *
			SECTION- A	SECTION- B	
			3marks	12mrks	
1.	Introduction to Statistics	13	3	1	21
2.	Univariate Data Analysis	18	2	2	30
3.	Bivariate Data Analysis	15	4	1	24
4.	Multivariate Data Analysis	10	1	1	15
Total hours & marks	-	56	30	60	90

(\* including choice)

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**FIRST SEM SCHEME OF QUESTION PAPER**

**1. Statistical Methods (Open Elective-1)**

**SCHEME:NEP OE-1**

Unit No.	Content	Hours of teaching	No. of questions		Total marks in the question paper *
			SECTION- A	SECTION- B	
			3marks	12mrks	
1	<b>Statistical Data and Descriptive Statistics</b>	12	1	2	27
2	<b>Simple Correlation and Regression Analysis</b>	10	3	1	21
3	<b>Index Numbers</b>	10	3	1	21
4	<b>Time Series Analysis</b>	10	3	1	21
Total hours & marks	-	56	30	60	90

(\* including choice)

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**FIRST SEM SCHEME OF QUESTION PAPER**

**2.Business Statistics (Open Elective-2)**

**SCHEME:NEP OE-2**

Unit No.	Content	Hours of teaching	No. of questions		Total marks in the question paper *
			SECTION- A	SECTION- B	
			3marks	12mrks	
1	<b>Introduction</b>	10	3	1	21
2	<b>Univariate and Bivariate Data Analysis</b>	12	1	2	27
3	<b>Probability and Distributions</b>	10	3	1	21
4	<b>Sampling Distributions and Testing of Hypothesis</b>	10	3	1	21
Total hours & marks	-	56	30	60	90

(\* including choice)