BSTM-161

ASSIGNMENT BOOKLET

BASIC STATISTICAL METHODS

Valid from 1st Jan, 2026 to 31st Dec, 2026

School of Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110068

(2026)

Dear Student,

Please read the section on assignments in the Programme Guide that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The assignment is in this booklet.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully.

1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ROLL NO.: ……

NAME: ……

ADDRESS: ……

……

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COURSE CODE: …….
COURSE TITLE: …….
ASSIGNMENT NO.: ……..…
STUDY CENTRE: ……..….. **DATE:** ……..……...

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.

3) Leave 4 cm margin on the left, top and bottom of your answer sheet.

4) Your answers should be precise.

5) While solving problems, clearly indicate which part of which question is being solved.

6) This assignment is **valid from 1st Jan, 2026 to 31st Dec, 2026**. If you have failed in this assignment or fail to submit it by Dec, 2026, then you need to get the assignment for the year 2027, and submit it as per the instructions given in the Programme Guide.

7) **You cannot fill the examination form for this course** until you have submitted this assignment.

We strongly suggest that you retain a copy of your answer sheets.

We wish you good luck.

TUTOR MARKED ASSIGNMENT

BSTM-161: Basic Statistical Methods

Course Code: BSTM-161

Assignment Code: BSTM-161/TMA/2026

Maximum Marks: 100

Note: All questions are compulsory. Answer in your own words.

1. State whether the following statements are True or False and also give the reason in support of your answer. **(2×5=10)**

   a) If Standard Deviation of the Variable X is 5, then the Standard Deviation of the Variable Y = 2X–3 will be 7.

   b) Mean Deviation for a given data is least when calculated from the Median.

   c) The Karl Pearson's Correlation Coefficient between X and (a – X) is –1.

   d) The Regression Coefficients b_{yx} and b_{xy} of a data are found to be 1.2 and 0.8, respectively.

   e) In Exclusive Method, Upper Limit of a class is included in the same class.

2. a) Find the missing information from the following data:

	Group I	Group II	Group III	Combined
Number	50	?	90	200
Standard Deviation	6	7	?	7.746
Mean	113	?	115	116

   b) If AM and GM of two numbers are 30 and 18, respectively, find the numbers.

(10+05)

3. a) The frequency distribution of the marks obtained by the 25 students each of the two sections is given as follows:

Marks:	10-20	20-30	30-40	40-50	50-60
Section A:	2	5	10	5	3
Section B:	3	7	8	5	2

   Find which section is more consistent.

   b) Mean and Standard Deviation of 18 observations are found to be 7 and 4, respectively. On observing the original data, it was found that observation 12 was miscopied as 21 in the calculations. Calculate correct Mean and Standard Deviation.

(10+07)

4. The equations of two Regression Lines are given as follows:

$$4x - 5y + 30 = 0$$

$$20x - 9y - 107 = 0$$

Calculate (i) Regression Coefficients, b_{yx} and b_{xy}; (ii) Correlation Coefficient r(x, y); (iii) Mean of X and Y; and (iv) the value of σ_y if $\sigma_x = 3$. **(12)**

5. A Researcher collects the following information for two variables x and y:

n = 20, r = 0.5, Mean (x) = 15, Mean (y) = 20, $\sigma_x = 4$ and $\sigma_y = 5$

Later it was found that one pair of values (x, y) was wrongly taken as (16, 30) whereas the correct values were (26, 35). Find the correct value of r(x, y).

(12)

6. a) If A, B, C, D are constants, then show that the Coefficient of Correlation between (AX+B) and (CY+D) is numerically equal to that between X and Y.

b) A Statistician wanted to compare two Methods A and B of Teaching. He selected a random sample of 22 students. He grouped them into 11 pairs so that the students in pair have approximately equal scores on an intelligence test. In each pair one student was taught by Method A and the other by Method B and examined after the course. The marks obtained by both methods are given as:

Methods	1	2	3	4	5	6	7	8	9	10	11
Method A	24	29	19	14	30	19	27	30	20	28	11
Method B	37	35	16	26	23	27	19	20	16	11	21

Find the Spearman's Rank Correlation Coefficient. **(06+08)**

7. a) Fit an Exponential Curve of the form $Y = ab^X$ to the following data:

X:	1	2	3	4	5	6	7	8
Y:	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

b) Calculate the first, second and third Quartiles for the following data:

Class:	Below 30	30-40	40-50	50-60	60-70	70-80	80 and above
Frequency:	69	167	207	65	58	27	10

Also find the Quartile Deviation and Coefficient of Quartile Deviation. **(10+10)**