ASSIGNMENT BOOKLET

Post Graduate Diploma in Applied Statistics

(Specialisations in Industrial Statistics/Biostatistics)

MST-001: Foundation in Mathematics and Statistics

(Valid from 1st January 2026 to 31st December, 2026)

It is compulsory to submit the assignment before filling the Examination Form. Candidates should submit the latest assignment for the courses for which they filled the examination form. Only Work books/Lab Record Books are needed to be submitted for the Lab Courses.

School of Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110068
(2026)

Dear Student,

Please read the information on assignments in the Programme Guide that we have sent you after your enrolment. A weightage of 30%, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The assignment for the theory course MST-001 has been given.

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:

ENROLLMENT NO :……

NAME :……

ADDRESS :……

……

……

PROGRAMME CODE: PGDAST

COURSE CODE: MST-001

COURSE TITLE: FOUNDATION IN MATHEMATICS AND STATISTICS

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) This assignment is to be submitted at the Study Centre.

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

6) This assignment is valid from January 1st, 2026 up to December 31, 2026.

7) The latest assignments should be submitted by the candidate.

8) **You cannot fill the Exam Form for this course** till you have submitted this assignment. So solve it and **submit it to your study centre at the earliest.** If you wish to appear in the **TEE, June 2026,** you should submit your TMAs by **March 31, 2026.** Similarly, If you wish to appear in the **TEE, December 2026,** you should submit your TMAs by **September 30, 2026.**

We wish you good luck.

TUTOR MARKED ASSIGNMENT

MST-001: Foundation in Mathematics and Statistics

Course Code: MST-001 **Assignment Code: MST-001/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**. Give a reason in support of your answer. **(2+3+3+2)**

(a) Between any two different irrational numbers there is another irrational number.

(b)

$$\int_{-10}^{10}\left(x^{11}+x^{21}+x^{31}\right)dx=0$$

(c) $$\begin{vmatrix} p & x & q+r \\ q & x & r+p \\ r & x & p+q \end{vmatrix}=0$$

(d) The range of the data shown in the following frequency distribution is 350**.**

Classes	20-25	25-30	30-35	35-40	40-45	45-50	50-55
Frequencies	0	7	3	8	4	0	0

2. (a) A carpenter was hired to build 320 window frames. The first day he made five frames and each day thereafter he made two more frames than he made the day before. How many days he will take to finish his job? **(5)**

(b) Set having values $\frac{1}{2}, \frac{1}{2^2}, \frac{1}{2^3}, \frac{1}{2^4}, \frac{1}{2^5}, \frac{1}{2^6}, \ldots$ is countable. **(5)**

3. How many different signals are possible with 5 blue, 4 red, 3 white and 2 green flags by using all at a time in a queue? **(10)**

4. Discuss the continuity and differentiability of the following function at x = 5. **(5+5)**

$$f(x)=\begin{cases} |x-5|, & x\neq 5 \\ 0, & x=5 \end{cases}$$

5. Evaluate the integrals: $\int \frac{1}{(x-2)(x^2+4)}dx$ **(10)**

6. Find values of x, y and z given that

$$5x+y+z=36$$
$$x+y+z=16$$
$$10x+2y+2z=72$$

You are bound to use the matrix techniques to solve the given equations. **(10)**

7. Write any 5 principles of data visualisation. **(20)**

8. Write whether the following data are discrete or continuous. Give reason in support of your answer.

(a) Number of children in a family in a colony of 1000 families.

(b) Number of pages in each of the 50 books having some mistake.

(c) Height of students of IGNOU who enrolled in 2021.

(d) Waiting time of metro when a person reaches metro station.

(e) Monthly income of the family.

(5×4 = 20)