### **ASSIGNMENT BOOKLET**

LMT-01

## **Certificate Programme in Teaching of Primary School Mathematics (CTPM)**

# **LEARNING MATHEMATICS**

(Valid from 1<sup>st</sup> January, 2025 to 31<sup>st</sup> December, 2025)

It is compulsory to submit the assignment before filling in the exam form.



School of Sciences Indira Gandhi National Open University Maidan Garhi, New Delhi-110068 (2025) 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:		
COURSE CODE:			
COURSE TITLE:			
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 only upto 31<sup>st</sup> December, 2025. If you have failed in this assignment or fail to submit it by 31<sup>st</sup> December, 2025, then you need to get the assignment for the next cycle and submit it as per the instructions given in that assignment.
- 7) It is compulsory to submit the assignment before filling in the exam form.

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

We wish you good luck!

### ASSIGNMENT

### Course Code: LMT-01 Assignment Code: LMT-01/TMA/2025 Maximum Marks: 100

- a) Deepa had to introduce the concept of 'half' to her class of 7-yar olds. She began by asking children if they could show half of anything. Most children came up with examples by breaking a chalk piece or tearing a sheet of paper into two. Deepa allowed children to talk to each other and share their examples with the whole class. More examples emerged, such as half of a glass of water. Deepa did not emphasize that the size of the two pieces must be equal for each to be one-half of the whole. Through the entire class she did not introduce the symbol <sup>1</sup>/<sub>2</sub>.
  - i) Do you think Deepa should have started by giving examples of 'half' herself? Justify your answer.
  - ii) Was Deepa justified in not introducing the symbol? Explain why?
  - iii) Suggest an activity to carry this forward on the following day. (6)
  - b) What do ássimilation' and áccommodation' mean? Explain, the terms in the context of learning measurement of time. (4)
- a) We have a hypothesis: "Class V girls perform better in mathematics than boys of the same class". What data would children need to gather to test this hypothesis? How would they analyse the data? (5)
  - b) Give an example of a mathematical conjecture.
  - c) What is a tiling (tessellation)? Give an example of a tiling using two different shapes.

(3)

(2)

- 3. a) A class 2 child adds 141 and 41 as follows:
  - $\begin{array}{rrrrr}
     1 & 4 & 1 \\
     + & 4 & 1 \\
     \hline
     5 & 5 & 1
    \end{array}$
  - i) Give possible reasons for wrong result?
  - ii) What does the teacher lose by not looking carefully at errors made by her learners?
  - Describe a distinct activity that you would carry out with the class to address the problem of such results in the addition of numbers. (6)
  - b) According to Piaget, pre-school children do not maintain a consistent criterion while classifying objects. Explain this statement with two examples from different areas of mathematics. (4)
- 4. a) Write the five steps involved in solving any mathematical problem (as given by Davis and Mayer)? Illustrate each of them by solving the following problem: Ä coin is tossed 6 times. Assuming that it is a fair coin, what is the probability of getting exactly 3 heads and 3 tails"? (5)

- b) Why do children have difficulties with the algorithms for addition and subtraction of decimal numbers? Describe in detail how you would help class 5 children develop the subtraction algorithm. (To specify, consider 3.7 1.82.) (5)
- 5. a) Here is a sequence of numbers:

2, 5, 10, 17, ...

What would be the next number in the sequence? Give two different answers, stating the rule in each case. (4)

- b) What are the stages of guided learning? Explain "scaffolding" and the role of adults .
   Illustrate these using an example related to the learning of area. (6)
- 6. Do you agree with each of the following statements? Give reasons for your answers.
  - a) Mathematics is the study of numbers and calculations.
  - b) The decimal fraction 0.02 is greater than 0.1.
  - c) Children learn mainly by imitating adults.
  - d) Games can play an important role in the mathematics classroom.
  - e) Children in classes 1 and 2 can handle data.

(10)

(3)

- 7. Explain the following statements briefly. You should include appropriate examples in your explanations.
  - a) Exploring a mathematical concept is an on-going process.
  - b) Doing algebra is the essence of mathematical thinking.
  - c) A teacher should be a scaffold for her learners.
  - d) Developing spatial understanding is more than about learning some definitions and rules of geometry.
  - e) Gathering data is one tool for making sense of the world around. (10)
- 8. Why do we need to develop the ability of estimating the outcome of arithmetic operations on fractions? Further, give **a series of three activities** to help a Class 4 child develop the ability to estimate the bigger of two fractions. Explain how the activities form a series. (10)
- 9. What is 'egocentrism'? What did Martin Hughes think about Piaget's views on egocentrism? What was the experiment which his understanding was based on? (10)
- 10. Suppose you are teaching a child addition of decimal fractions, according to the constructivist model. In this context,
  - i) how would you access her readiness for this topic? (3)
  - ii) formulate three questions to draw out her thinking.
  - iii) give two errors that this child may make while learning this process. How would you use these errors to her learning? (4)