LMT-01

ASSIGNMENT BOOKLET

Certificate Programme in Teaching of Primary School Mathematics (CTPM)

LEARNING MATHEMATICS

(Valid from 1st July, 2024 to 30th June, 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
(For July, 2024-2025 Session)

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 30th June, 2025. If you have failed in this assignment or fail to submit it by 30th June, 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/2024-25
Maximum Marks: 100

1. 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 ½.

   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)

2. 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. (2)

   c) What is a tiling (tessellation)? Give an example of a tiling using two different shapes. (3)

3. a) A class 2 child adds 141 and 41 as follows:

$$\begin{array}{r} 1\ 4\ 1 \\ +\ 4\ 1 \\ \hline 5\ 5\ 1 \end{array}$$

   i) Give possible reasons for wrong result?
   ii) What does the teacher lose by not looking carefully at errors made by her learners?
   iii) 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)

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. (3)
iii) give two errors that this child may make while learning this process. How would you use these errors to her learning? (4)