

ASSIGNMENT BOOKLET

LMT-01

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

LEARNING MATHEMATICS

(Valid from 1st July, 2020 to 30th June, 2021)

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**

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, 2021. If you have failed in this assignment or fail to submit it by 30th June, 2021, 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/2020-21
Maximum Marks: 100

Note: For any question worth 5 marks, your answer should be of about 200 words, and for questions worth more marks, the length of the answer should be proportionate.

1. Which of the following statements are true? Give reasons for saying true or false.
 - i) Each of us handles data.
 - ii) The probability of it raining in Kochi on June 5th, 2021 is $\frac{1}{2}$.
 - iii) If a child correctly divides 39 by 3, it shows that she knows division.
 - iv) 25, written in base 10, is 150, written in base 6.
 - v) The product of any two non-zero integers is greater than or equal to each of these integers. (10)

2. Give a constructivist strategy, in detail, to introduce a Class 5 child to the concept of a variable. At each stage outline the kind of activities you would use, and the series of activities you would use. Especially clarify your assessment and evaluation strategies. (15)

3. Explain the difference between a scheme and a schema, using an example related to measuring angles. Also explain, through your example, how elaboration, assimilation and accommodation take place in a scheme and in a schema. (10)

4. Explain the difference between conceptual and procedural knowledge, through an example related to the addition of negative numbers. (5)

5.
 - a) List three spatial abilities that the usual Class 1 child has. For any of these abilities, outline a series of three activities you would use to assess the extent to which a child has acquired the spatial ability. Also explain how the activities form a series. (10)
 - b) List three problems that preschoolers often face when reading pictures. What could the reasons be for these problems? (6)
 - c) List three issues that show up when the pictures drawn by young children, of the world around them, are analysed. What are the reasons behind these issues? (9)

6.
 - a) Is there a rule by which one can tell whether a number is divisible by 7? If yes, why does this rule work? If there is no such rule, give a rule for divisibility by 5. (5)
 - b) Give an activity, in detail, to help a Class 4 child develop the ability to estimate the difference of two fractions. Also give an activity, not involving paper and pencil, to help you assess the efficacy of the activity you gave. (5)

7. Give an example, with justification, of each of the following:
- i) a 2D figure which has reflection symmetry;
 - ii) a 2D figure with at least 30 lines of symmetry;
 - iii) a 2D figure with no rotational symmetry;
 - iv) a net of a wall-paper pattern;
 - v) a motif for a regular tessellation. (10)
8. a) What are the four different types of statements that make up a proof? Give an example of each kind. (8)
- b) Give an example of a mathematical statement that is not true. Also disprove the statement. (2)
9. Use the principle of mathematical induction to prove that
- $$(1 + 3 + 3^2 + \dots + 3^n) = \frac{3^{n+1} - 1}{2} \forall n \in \mathbb{N}. \quad (5)$$