LMT-01

ASSIGNMENT BOOKLET

Certificate Programme in Teaching of Primary School Mathematics (CTPM)

LEARNING MATHEMATICS

(Valid from 1st July, 2021 to 30th June, 2022)

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, 2021-2022 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: ……

……

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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, 2022. If you have failed in this assignment or fail to submit it by 30th June, 2022, 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/2021-22
Maximum Marks: 100

1. a) "Children learn whatever they learn by imitating others." Do you agree with this comment? Justify your answer through an appropriate situation. (3)

   b) Differentiate between a scheme and a schema by taking an example from the context of multiplication of numbers. (3)

   c) Give an example of a mathematical problem which can be solved by more than one method. If a child is exposed to these different methods for solving, how does this help her to consolidate ideas about the concepts involved in the problem? (4)

2 a) Give a situation to illustrate that learning takes place in out-of-school contexts. Through this same situation, illustrate any two characteristics of informal learning. (5)

   b) Devise a mathematical game or puzzle that is useful in developing the ability of estimation in the context of decimal fractions. Explain how this ability is developed through the game. (5)

3. a) Write down four objectives of assessment in a constructivist approach, and compare them with the objectives of a behaviourist approach. (3)

   b) What are the two types of mathematical knowledge? Give an example to illustrate the difference between them. (2)

   c) Prepare a tangram apart from the one given in the course material. Explain how you would use it to illustrate to Class 2 children the distinction between regular and irregular 2-dimensional shapes and also to familiarise them with different types of regular shapes. (5)

4. a) Give a word problem involving subtraction of fractions. What are the steps for solving this problem, according to Davis and Meyer? Illustrate them in the context of solving the problem you have given. (6)

   b) Write five points that are to be kept in mind while devising a classroom activity which helps children differentiate between left and right. (2)

   c) "Multiplication of two numbers makes a bigger number." Is this statement true? Justify your answer. (2)

5. a) i) Devise an activity which helps children differentiate between the two types of mathematical knowledge, in the context of learning about the arithmetic mean of data.

      ii) Give one situation where the arithmetic mean is not a representative of the data. (5)

b) Write two distinct real-life situations where children would use the concept of chance. What are their misconceptions regarding the notion of chance? Why is it important to correct them. (5)

6. a) Explain two significant differences between the 'banking model' and 'constructivist model' of learning. Your explanation should be built around examples dealing with spatial learning. (4)

b) Draw a process diagram and justify why it is called so. Children face problems in understanding a process diagram. What could three reasons for this be? (6)

7. Devise two distinct activities for 3 or 4-year-old children for assessing whether preschoolers are dominated by their perception. Try these activities on 5 such children and give your findings. (You must attach some evidence showing your interactions with children along with the assignment response.) (10)

8. a) What is mathematical proof? Prove the statement, "If a side of a triangle is produced, the exterior angle so formed is equal to the sum of the two interior opposite angles." Mention the "premises" that are used in proving the theorem. (5)

b) Choose any three different numbers from 0 to 9. Make all possible 2-digit numbers from these three numbers. Find out the sum of all these numbers. Find the sum of the original numbers. Divide the previous sum by the last sum. Your answer should be 22. Justify this answer, and explain why it works in all cases. (5)

9. a) Give one example each, with justification, of

i) a figure with reflection symmetry in the y-axis but not in the x-axis;

ii) a figure which has only one rotational symmetry;

iii) a figure which has no symmetry. (3)

b) Prove or disprove the statement, "If n is an integer such that $(3n + 2)$ is even, then n is even." (4)

c) Explain the process of abstracting a concept by taking an example from the Class 4 syllabus. (3)

10. Check whether the following statements are true. Justify your answers. (10)

i) Algorithms only exist for performing the four basic arithmetic operations.

ii) Any decimal fraction can be divided by any other decimal fraction.

iii) There exist data which are not normally distributed.

iv) A cuboid is an example of a regular polyhedron.

v) A picture need not be a map.