

ASSIGNMENT BOOKLET

AMT-01

**Bachelor Degree Programme
&
Certificate Programme in Teaching of Primary School Mathematics**

Teaching of Primary School Mathematics

(Valid from 1st January, 2021 to 31st December, 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
(2021)**

Dear Student,

Please read the section on assignments in the Programme Guide for Elective Courses 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 December, 2021. If you have failed in this assignment or fail to submit it by December 2021, then you need to get the assignment for the next cycle (December 2022) 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: AMT-01
Assignment Code: AMT-01/TMA/2021
Maximum Marks: 100

Note:

- 1) In any question, whenever we ask you to suggest an activity, we expect you to give one other than those covered in the units.
 - 2) For any question worth 5 marks, the word limit is about 200 words, for a 10 mark question it is 350 words, and for a 15 mark question it is 500 words.
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1. a) Give one example each, with justification, to support the following statements. (6)
 - i) Children in early primary school have a problem with handling formal arithmetic.
 - ii) Repetition is not the same as rote learning.
 - iii) Objects of different shapes may have the same volume?
- b) Evaluation at every step, through immediate feedback, should form part of teaching – learning process. Explain this statement in the context of each, teaching and learning of place-value. Further give three distinct multiple assessment techniques for evaluation in the context given. (7)
- c) How would you convince a child that any number multiplied by 0 is 0, using a teaching aid. (2)
2. a) Illustrate with examples why “classification” and “seriation” are pre number concepts. Develop a series of three distinct activities at different levels of difficulty, to assess how for children have ability to perform any one of these two processes. Explain how these activities are at different levels of ability. (10)
- b) Illustrate the use of each of the following in learning the concept of “fraction”. (5)
 - i) an outdoor activity
 - ii) newspapers and magazines
3. a) What could be the logic behind the following subtraction done by a child:

$$\begin{array}{r} 3.45 \\ - 4.6 \\ \hline 1.39 \end{array}$$

Does this shows that the child has not understood the process of subtraction of numbers? Give reasons for your answer. How will you help her to correct her mistake. (6)

- b) Analyze any chapter of the mathematics text book for class 3 children and identify two portions in it where the language of mathematics is not appropriate to the level of children. You reword the portions of it, to make it simpler for children to learn it better. Present the original portion and the changed portion with necessary explanation which justifies the changes. (4)
4. a) A class 4 teacher wants to help her students understand the 3 categories of division of numbers. Construct one word problem of each category corresponding to the division $32 \div 8 = 4$. Which of these categories of word problems is usually considered difficult for a primary school child to understand? Give reasons for your answer. (7)
- b) Devise a game for a group of appropriate level of children to help them develop the ability to estimate volume. (3)
5. a) What is a magic square? Complete entries in the following and make it a magic square.

	8	12	1
11	7		2
10	5	3	
4		6	9

- Illustrate the methods used for filling the entries. Also explain why the method work? (5)
- b) Explain two implications for teaching mathematics of the fact that mathematical knowledge is hierarchically constructed. Give examples in support of your answers in the context of teaching negative numbers. (5)
- c) Much of Mathematics teaching is actually about encouraging children to become more aware about patterns they find and to use them in their thinking. Illustrate this in the case of the situation given below by answering the questions given in questions (i), (ii) and (iii), below.

“A mathematics teacher in class 5 showed the following pattern in the class.

$$46 \times 44 = 2024$$

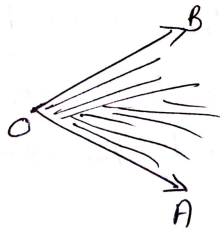
$$63 \times 67 = 4221$$

$$71 \times 79 = 4909$$

She gave some time for the students to identify the pattern. After some time she asked the students to find the answer of “ 84×86 ” in one second. One student answered 7224. Based on this situation, answer the following question.

- i) What is the pattern used by the student?
- ii) Explain why it works?
- iii) Describe how it helps to encourage mathematical thinking. (5)
6. a) Give a pictorial representation to represent the following: (5)

- i) $\frac{7}{4} = 1\frac{3}{4}$.
- ii) $2 - 1.25 = 1.75$
- iii) $(-3) - (-8) = -5$
- iv) An irregular figure can have more than one line of symmetry.
- v) A 3D object which is flat.
- b) Prove that the sum of the first n even numbers is an even number. Is the kind of logic used in proving this is inductive, deductive or both? Justify your answer. (5)
- c) When a class 4 child was asked to mark the angle AOB in the following figure, she did the following. (5)



What could be the possible reasons for giving such answers? Suggest a class room activity that helps children explore and learn the concept of angle and also helps children to articulate reasons and construct arguments discussed in Sec. 18.3 of Block 5.

7. a) A class 5 child believe that the division always makes a number smaller. Describe an activity that could help her correct her misconceptions. Also describe an activity to assess how far the activity is effective. (5)
- b) i) What is an equation? Does all the equation involve a variable. Give an example of an equation with a variable in it and which does not have a variable in it.
- ii) Here is a think of a number game: '*Think of a number, then double it, add six to the sum, divide the sum by half and then subtract 3 from it the number*'. Did you receive the same number you had started with? Why? Justify. (5)
8. Which of the following statements are true or false? Give reasons for your answer. (10)
- i) Pre-operational thinking is the characteristic of a two year old child.
- ii) Each mathematical problem have a unique solution.
- iii) 'Today is a bright day' is an unambiguous statement.
- iv) The sum of the interior angles of a Pentagon is 450° .
- v) If the capacity of a 3D-objects increases, then the volume also increases.