

Spring Semester Examination 2022  
Paro College of Education  
Royal University of Bhutan

**Module:** MTA101 (Mathematics in Lower Primary I)

**Programme:** BEd (P)

**Level:** I

**Writing Time:** 2 hours

**Full marks:** 60

---

**Instruction:** There are *seven* questions in this exam paper. Answer any *five* questions. All questions carry equal marks. Intended marks for all the sub-questions are given in brackets alongside.

---

**(5 × 12 = 60 marks)**

**Question 1**

- a. List four good features of a classroom environment that are important for students to be engaged in doing mathematics [2]
- b. Describe each feature briefly mentioning how these could contribute towards achieving the scenario. [10]

**Question 2**

- a. List the five strands of mathematical proficiency. [2.5]
- b. Explain how mathematically proficient people might showcase the effective use of the strands in their real life as a result of learning mathematics in the schools. [9.5]

**Question 3**

- a. Describe how language affects the teaching and learning of school mathematics particularly in the lower primary classes giving relevant examples of your own experiences. [6]
- b. Compare and contrast 'conceptual knowledge' and 'procedural knowledge' in three relevant aspects [6]

**Question 4**

- a. State the five content strands as defined by the NCTM's Standards for School Mathematics. Explain how the above content strands are emphasized differently in different grade bands in the Bhutanese mathematics curriculum. [2.5 + 4.5 = 7]
- b. Define one of the principles (NCTM, 2000), in your own words and describe clearly its application in your mathematics lesson plan. [5]

**Question 5**

- a. Explain how a teacher can use different modes of representation to help develop concepts in mathematics classrooms. Use appropriate illustrations to clarify your idea. [6]
- b. Name two emerging technologies in the educational arena. Describe how you can be ready for these new technologies in the future to teach mathematics in the primary classes? [2 + 4 = 6]

### Question 6

- a. Give a brief account of your views and analysis on the Bhutanese mathematics curriculum in relation to the NCTM's Principles of School Mathematics. [7]
- b. List five requirements of a teacher that are essential as a professional standards for teaching mathematics. [5]

### Question 7

- a. What does it mean to say that understanding exists on a continuum from relational to instrumental? Illustrate with an example of an idea to explain how a student's understanding might fall on either end of the continuum. [6]
- b. Explain two ways that technological tools have affected the mathematics curriculum and how it is taught. Give examples to support your explanation. [6]