



**UNIVERSITY OF JOHANNESBURG**  
**FACULTY OF EDUCATION**  
**NOVEMBER EXAMINATION 2016**

**PROGRAMME:** B Ed Hons  
**MODULE:** CURRENT ISSUES IN MATHEMATICS EDUCATION  
**CODE:** CIM0027  
**TIME:** 3 hours  
**MARKS:** 100  
**EXAMINER:** Dr ED Spangenberg  
**MODERATOR:** Dr LS van Putten (UP)

(This paper consists of **three (3)** pages)

**INSTRUCTIONS**

Read the following instructions carefully before answering the questions:

1. This question paper consists of four questions.
2. You need to answer **three (3)** questions: Any **two (2)** questions from Section A, and the **compulsory question** in Section B.
3. Number the answers correctly according to the numbering system used in this question paper.
4. Write legibly and present your work neatly.
5. Read the questions carefully before answering them.
6. Questions may be answered in English or Afrikaans.

**SECTION A** (Answer any **two (2)** questions)

**QUESTION 1**

- 1.1 Distinguish between the three categories or philosophical frameworks under which learning theories in mathematics fall? (6)

- 3.1 The specialised knowledge that mathematics teachers require to effectively integrate technology into teaching practices. (18)
- 3.2 The four essential components of the mathematics TPACK framework. (12)
- 3.3 Reasons for slow effective technology implementation by teachers in the mathematics classroom. (6)
- 3.4 Four central components of knowledge necessary for technology-using mathematics teachers. (4)
- (40)**

Any **two (2)** questions x **(40)** = **[80]**

## **SECTION B (Compulsory)**

### **QUESTION 4**

In this module we looked at Mathematics Discourse in Instruction (MDI) as an analytical framework for studying mathematical aspects of what teachers say, do and write as they interact with learners in mathematics classrooms, thus to describe the mathematics made available to learn during instruction – and so describe what is enacted. Write an essay of two pages ( $\pm$  600 words), in which you reflect on MDI as a data-analysis tool. In your answer, you should refer to the contributions of, amongst others, Adler and Rondal (2015). (20)

**TOTAL: 100**

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