UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
NOVEMBER EXAMINATION 2016

PROGRAMME:	PGCE and B Ed (FET)
MODULE:	TEACHING METHODOLOGY & PRACTICUM: FET MATHEMATICS
	SUBJECT METHODOLOGY: MATHEMATICS (PGCE)
CODE:	MPFMAY1
	XWI0000
TIME:	3 hours
MARKS:	150
EXAMINER:	Mrs K Ramatlapana
MODERATOR:	Dr A Essien (WITS)

(This paper consists of **four (4)** pages)

INSTRUCTIONS

Read the following instructions carefully before answering the questions:

1. This question paper consists of **seven (7)** questions.
2. Answer **ALL** the questions.
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 are to be answered in English.

QUESTION 1

The principal is interviewing you a for a high school mathematics teaching position. The principal is looking over your portfolio and notices that "Technology Integration in Mathematics Classroom" was a unit in your methodology module. She mentions that the school has a classroom set of laptops, but that no one in the mathematics department has checked them out. She then asks you, "How might you use this technology in your classroom?"

1.1 Respond to the principal's questions assuming you do not have any access to technology there in the interview. (10)

1.2 Now suppose the principal says, "Here is my laptop. Could you take a minute to show me what you are talking about?" How might you supplement your previous response? (12)

(22)

QUESTION 2

2.1 Select and clearly state three (3) "big ideas" relating to **Functions** as prescribed in the CAPS FET document. (3)

2.2 Suggest a possible teaching strategy for simplifying **each** "big idea" in 2.1 to FET learners. (6)

2.3 Identify a common misconception related to each "big idea". (3)

2.4 Provide a possible teaching strategy to address this specific misconception related to each "big idea". (9)

2.5 Design an assessment task or activity to demonstrate learners' understanding of each "big idea". (15)

(36)

QUESTION 3

3.1 There are various perspectives in which Mathematics Education can be viewed. Briefly discuss how mathematics viewed and perceived in society. (5)

3.2 You want to provide flexibility in your learners' understanding of classification of quadrilaterals. Explain to the learners why a quadrilateral is a parallelogram. (10)
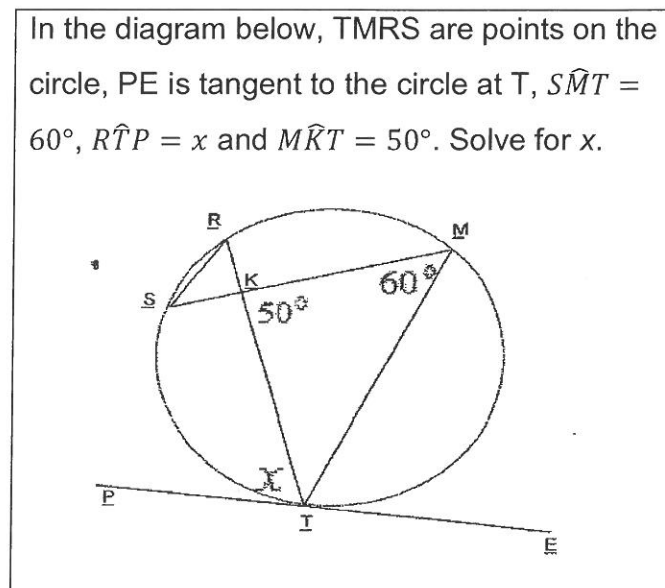
(15)

QUESTION 4

4.1 A curriculum can be interpreted as 'that which is planned and guided'. What does Mathematics FET CAPS assume about the following aspects:

4.1.1 Learning and the learner (3)

4.1.2 Teaching and the teacher. (3)

4.2 The ability to teach mathematics content is influenced by general pedagogy, PCK, and mathematical content knowledge. Explain what PCK is and why it is important to develop this type of knowledge. (9)

(15)

QUESTION 5

Investigate the teaching and learning scenario below:

Learners were asked to solve for 'x' in the following Euclidean type circle problem and more than half of the class gave this answer: $x = 60°$

In the diagram below, TMRS are points on the circle, PE is tangent to the circle at T, $S\widehat{M}T = 60°$, $R\widehat{T}P = x$ and $M\widehat{K}T = 50°$. Solve for x.

Thando says the answer is $x \neq 60°$. Explain to the other learners Thando's thinking. (20)

(20)

QUESTION 6

A **lesson plan** is a teacher's detailed description of the course of instruction, or 'learning trajectory' for a **lesson**. Briefly discuss the following:

6.1 The six (6) principles of a lesson plan (12)

6.2 The three (3) phases of a lesson plan. (9)

(21)

QUESTION 7

7.1 The purpose of school-based assessment is to support the development of the learners and to provide feedback into teaching and learning. Critically discuss, with examples, how you would use the following assessments as school-based assessments.

    7.1.1   Baseline assessment   (3)

    7.1.2   Informal assessment   (3)

    7.1.3   Diagnostic assessment   (3)

    7.1.4   Formal assessment.   (3)

7.2 Explain by means of examples the different assessment forms, tools and methods.   (9)

(21)

TOTAL: 150

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