UNIVERSITY OF JOHANNESBURG

UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
NOVEMBER EXAMINATION 2015

PROGRAMME:	B Ed and PGCE
MODULE:	TEACHING METHODOLOGY & PRACTICUM: FET MATHEMATICS SUBJECT METHODOLOGY: MATHEMATICS SUBJECT METHODOLOGY: MATHEMATICS (PGCE)
CODE:	MPFMAY1 XWI0000 XWI0001
TIME:	3 hours
MARKS:	150
EXAMINER:	MRS KIM RAMATLAPANA
MODERATOR:	MRS LECRETIA REDELINGHUYS (NWU-VAAL)

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

INSTRUCTIONS

Read the following instructions carefully before answering the questions:

1. This question paper consists of **10** 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

"Reflection is meta-thinking (thinking about thinking) through which we consider the relationship between our thought and action in a particular context ... We pause to reflect because some issues arise which demand that we stop and take stock or consider before we act. We do so because the situation we are in requires consideration; how we act in it is a matter of significance" (Kemmis, 1985, p. 141).

Discuss the DATA process of reflection. **(8)**

QUESTION 2

Mathematics is a defined in CAPS as a human activity that develops mental processes that enhance logical and critical thinking, accuracy and problem-solving that will contribute in decision-making.

2.1. Discuss the four (4) cognitive processes involved in doing Mathematics. (12)

2.2. Explain what relational understanding and instrumental understanding are, and how the views of relational understanding and instrumental understanding can be made compatible. (7)

(19)

QUESTION 3

Differentiate between a slow learner and a gifted learner in Mathematics. Discuss how you would accommodate both types of learners in the same Mathematics classroom. **(10)**

QUESTION 4

Distinguish between Mathematics content knowledge and pedagogical content knowledge. **(6)**

QUESTION 5

5.1. Mathematics is one of the many subjects in the school curriculum. Explain the rationale for the inclusion of Mathematics in the school curriculum. (6)

5.2. Explain the connection between curriculum and instruction in the concentric model. (6)

(12)

QUESTION 6

The development of creative thinking in Mathematics acknowledges that the development of creativity is dependent on the individual's aptitude, potential and education. Use the following guidelines to discuss with examples how Mathematics teachers can promote the creative potential of learners.

6.1. Knowledge of the learner. (4)

6.2. Teaching automatisms. (4)

6.3. Encouragement of original ideas. (4)

6.4. Personal initiative and self-directed learning. (4)

6.5. Creating a healthy affective learning climate. (4)

(20)

QUESTION 7

7.1 Distinguish between lecturing and co-operative learning. (6)

7.2. Describe the six (6) basic elements of co-operative learning. (18)

(24)

QUESTION 8

8.1 Explain what assessment is. (4)

8.2 Differentiate between formal and informal assessment. (6)

(10)

QUESTION 9

9.1. Communication is most probably the central component to teaching. Without any form of communication, teaching is impossible. Discuss the three (3) forms of communication proposed by Conway (2014). (6)

9.2. Explain what recording and reporting are and why it is important for a Mathematics teacher to record and report. (8)

(14)

QUESTION 10

10.1. Discuss the different types of questions in a Mathematics question paper. Give examples for each type. (18)

10.2. Describe the following types of assessment in Mathematics:

10.2.1. Baseline assessment (3)

10.2.2. Diagnostic assessment (3)

10.2.3. Systemic assessment. (3)

(27)

TOTAL: 150

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