UNIVERSITY OF JOHANNESBURG

FACULTY	:	Education
DEPARTMENT	:	Science and Technology Education
CAMPUS	:	APK
MODULE	:	Teaching Methodology and Practicum 3B
		(MFSPMB3)
SEMESTER	:	Second
EXAM	:	TAKE-HOME ASSIGNMENT NOVEMBER 2020

ASSESSOR(S)	: Ms JA BOUWER			
MODERATOR	: DR V RAMDHANY (UJ)			
DURATION	: SUBMISSION		**MARKS**	: 50

NUMBER OF PAGES: 3

INSTRUCTIONS:

1. Answer ALL the questions.
2. Number your answers correctly according to the numbering system used in this question paper.
3. Use Arial font, font size 12 and 1.5 line spacing.
4. Each question should be supported by literature (sources).
5. Attach the reference list.

QUESTION 1: Multilingualism in the mathematics classroom

1. Critically discuss the effects of multilingualism as a contextual factor in the teaching and learning of mathematics, using relevant sources to support your arguments. Address the following points in your discussion:

   1.1 The challenges faced by learners and teachers in the multilingual mathematics classroom. (10)

   1.2 Discuss *code-switching* as one of the dilemmas of multilingualism in the mathematics classroom. (10)

   [20]

QUESTION 2: Misconceptions and errors

2. Identifying and addressing errors and misconceptions form a crucial part of teachers' roles in the classroom. Discuss critically the issue of misconceptions in the mathematics classroom using relevant sources to support your argument. Use the following points to guide your discussion:

   2.1 Provide a definition for misconception. (4)

   2.2 Explain how the following can lead to learner misconceptions:

   2.2.1 Socio-economic factors; and (8)

   2.2.2 Cultural differences. (8)

   [20]

QUESTION 3: Teaching and learning trigonometry

$\left(\tan\theta + \sqrt{3}\right)^2 = \sec^2\theta$
$\tan^2\theta + 2\sqrt{3}\tan\theta + 3 = \sec^2\theta$
$\tan^2\theta + 2\sqrt{3}\tan\theta + 3 = 1 + \tan^2\theta$
$2\sqrt{3}\tan\theta = -2$
$\tan\theta = -\dfrac{1}{\sqrt{3}} = -\dfrac{\sqrt{3}}{3}$
$\theta = 150° \text{ or } 330°$

3. The solution to the problem above is incorrect. Discuss the solution by focusing on the following points:

   3.1 Explain one difference between a misconception and an error. (2)

   3.2 Discuss clearly why the solution is incorrect. (2)

3.3 Discuss, with reasons, whether the solution indicates a learner error or misconception. (3)

3.4 Explain how you would teach to address this error or misconception. (3)

[10]

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TOTAL: 50