



UNIVERSITY
OF
JOHANNESBURG

<u>FACULTY</u>	: Education
<u>DEPARTMENT</u>	: Science and Technology Education
<u>CAMPUS</u>	: APK
<u>MODULE</u>	: MOFPLY4 METHODOLOGY AND PRACTICUM:FET LIFE SCIENCES 4
<u>SEMESTER</u>	: Second
<u>SUBMISSION</u>	: November 2019

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MODERATOR : DR E NYAMUPANGEDENGU (WITS)

DURATION : 2 WEEKS **MARKS** : 100

NUMBER OF PAGES: 4 PAGES

INSTRUCTIONS:

1. Answer ALL THE QUESTIONS.
 2. Number your answers clearly.
 3. Type your work neatly and diagrams or illustrations should be clear.
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QUESTION 1: Misconceptions in Life Sciences

Research on learners' conceptual understandings of nuclear division often indicates that, even after being taught, learners use misconceptions different from the scientific concepts (Lewis & Wood-Robinson, 2000; Yesilyurt & Kara, 2007). Reasons for these misconceptions include learners' inability to differentiate between doubling (replication), pairing (synapsis), and separating (disjunction), as well as determining whether or not these processes occur in mitosis, meiosis, or both (Smith, 1991).

- 1.1 As a Life Sciences teacher identify and describe any two (2) suitable pedagogical representations that you could have used to address these learner misconceptions during WIL 3. **(20)**
- 1.2 Explain how you could have used your selected representations to address two (2) out of the three (3) problem areas: replication, synapsis and disjunction during WIL 3, clearly showing whether it occurs in mitosis and/or meiosis. **(30)**
- [50]**

QUESTION 2: Adapting teaching for specific contexts

The cartoon below portrays the diversity that can possibly be found in a Life Sciences classroom. Suppose you were the teacher during WIL 3, use the information in the cartoon to answer questions that follow.



- 2.1 When related to real learners, identify four (4) portrayed learner differences that could have impacted on the teaching, learning and understanding of Life Sciences concepts during WIL 3. (8)
- 2.2 Critically discuss how any two (2) of the identified differences in 2.1 influence positively or negatively on the teaching and learning of a specific Life Sciences concept. (20)
- 2.3 As a constructivist Life Sciences teacher how could you have taught a Life Sciences concept (identify it) to cater for learner diversity during WIL 3? (22)
- [50]
- Total: 100**

Appendix 1 and 2 are rubrics for questions 1 and 2 respectively.

Appendix 1

Levels and descriptors						
	1-5 Poor	6-10 Satisfactory	11-15 Good	16-20 Excellent		
1.1	Only one correct identification made and an attempt to make a description.	Two correct identifications and one correct description	Meaningful identification of pedagogical representations and reasonable description that answers the question.	Meaningful identification and explicit description which fully answers the question.		
	0-5 Very poor	6-10 Poor	11-15 Satisfactory	16-20 Good	21-25 Very good	26-30 Excellent
1.2	One representation used to answer one problem area.	Two representations used to partially answer two of the problem areas.	Use of two representations to address one problem area	Fair adequate use of two representations to address two problem areas	Adequate use of two representations to address two problem areas	Clear and meaningful use of two representations to fully address two problem areas.

Appendix 2

Levels and descriptors				
	1-2 Poor	3-4 Satisfactory	5-6 Good	7-8 Excellent
2.1	One meaningful difference identified.	Two meaningful differences identified.	Three meaningful differences identified.	All identified differences are meaningful.
	1-5 Poor	6-10 Satisfactory	11-15 Good	16-20 Excellent
2.2	Illogical analysis that does not inform teaching and learning.	Fairly reasonable analysis with some omissions of details	A reasonable critical analysis.	A logical, critical and meaningful discourse evident throughout.
	0-5 Poor	6-11 Satisfactory	12-17 Good	18-22 Excellent
2.3	Does not identify the concept and shows no understanding of teaching strategies that cater for diversity	Identifies concept but shows inadequate understanding of the teaching strategies that cater for diversity	Identifies the concept and shows an adequate understanding of the teaching strategies that cater for diversity	Identifies the concept and shows excellent understanding of teaching strategies that cater for diversity