



<u>FACULTY</u>	: Education
<u>DEPARTMENT</u>	: Science and Technology Education
<u>CAMPUS</u>	: APK
<u>MODULE</u>	: MPFLSY1 TEACHING METHODOLOGY AND PRAC: FET LIFE SCIENCES
<u>SEMESTER</u>	: Second
<u>EXAM</u>	: January 2020

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DURATION : 2 HOURS **MARKS** : 100

NUMBER OF PAGES: 5 PAGES

INSTRUCTIONS:

1. Answer ALL THE QUESTIONS.
 2. Number your answers clearly.
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QUESTION 1: Understanding the Life Sciences curriculum and Lesson planning

Specific Aim 2 of the Life Sciences CAPS curriculum refers to the engagement of learners in investigating Life Sciences phenomena, such that they are able to acquire science process skills. In enacting this aim teachers always refer to some setbacks.

- 1.1 Discuss three (3) of the related setbacks to the enactment of this specific aim. (6)
 - 1.2 As a competent Life Sciences teacher, provide the key differences between the curriculum document, a work schedule and a lesson plan. (3)
 - 1.3 State Specific aim 1 of the Life Sciences CAPS curriculum. (1)
 - 1.4 There are three (3) phases to a good lesson plan namely the pre-interactive, the interactive and the post-interactive phase.
 - 1.4.1 In your own words and with the use of an example from Life Sciences describe what the pre-interactive phase of a lesson plan entails. (5)
 - 1.4.2 What is the relationship between lesson objectives and formative assessment tasks? (5)
- [20]**

QUESTION 2: Pedagogical Content Knowledge (PCK)

Shulman (1986), postulated that effective teaching is attained when the relationship between teachers' subject matter knowledge and pedagogical knowledge are not treated as mutually exclusive components.

- 2.1 What is pedagogical knowledge? (2)
- 2.2 As a Life Sciences teacher, how does your knowledge differ from that of a scientist? (2)
- 2.3 List four (4) factors that reflect inadequate Pedagogical Content (4)

Knowledge (PCK) development in a Life Sciences teacher.

- 2.3 Identify and discuss three (3) pedagogical representations that you can use to simplify abstract Life Sciences concepts, such that they become more comprehensible to learners.

(12)

[20]

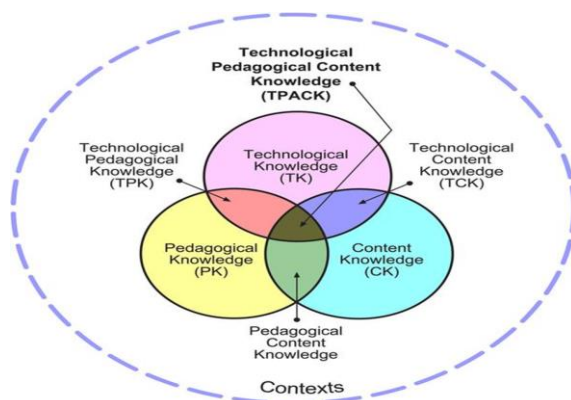
QUESTION 3: Technological Pedagogical and Content Knowledge (TPACK)

The TPACK framework was introduced by Punya Mishra and Matthew J. Koehler of Michigan State University in 2006. With it, they identified three primary forms of knowledge relevant for 21st century teaching: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK).

- 3.1 What is Technological Knowledge (TK)?

(2)

The following is a diagram showing relationships between different knowledge domains.



Explain the relationships between the components that are illustrated by the Venn diagram.

(10)

- 3.2 Tabulate the pros and cons of technological integration in Life Sciences teaching and learning.

(8)

[20]

QUESTION 4: Constructivist Teaching and Scientific Investigations

One of the principle beliefs of constructivist teachers is that learners construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences.

- 4.1 As a Life Sciences teacher critically discuss how the above statement translates into the use of scientific investigations for teaching Life Sciences concepts. (8)
 - 4.2 List five 5 skills that Life Sciences learners acquire when they engage in scientific investigations. (5)
 - 4.3 How does a constructivist teacher use learners' prior-knowledge to engage with the new content he/she intends to teach? (5)
 - 4.4 State two (2) sources of learners' misconceptions. (2)
- [20]**

QUESTION 5: Assessments in Life Sciences teaching

Science education entails the teaching, learning and assessment of science concepts.

- 5.1 What is assessment? (2)
- 5.2 State four (4) reasons why teachers should assess. (4)
- 5.3 Distinguish between formative and summative assessment. (8)
- 5.4 Rubrics are scoring tools which explicitly represents the performance expectations for an assignment or piece of work and enables the teacher to make reliable judgments about learners' work, while allowing learners to self-assess.

In a tabular format outline three (3) advantages and disadvantages of

using a rubric as an assessment tool.

(6)

[20]

TOTAL: 100