UNIVERSITY
OF
JOHANNESBURG

FACULTY	: Education
DEPARTMENT	: Science and Technology Education
CAMPUS	: APK
MODULE	: TEACHING METHODOLOGY AND PRACTICUM: SENIOR PHASE TECHNOLOGY (MPSTEY1)
SEMESTER	: Second
EXAM	: November 2019

ASSESSOR(S)	: MR W ENGELBRECHT		
MODERATOR	: DR N TEIS (UFS)		
DURATION	: 2 HOURS	**MARKS**	: 100

NUMBER OF PAGES: 9 PAGES

INSTRUCTIONS:

1.   Answer ALL THE QUESTIONS.

2.   Number your answers clearly.

3.   You may consult the NCS and the CAPS.

QUESTION 1

1.1   Explain the concept of technology. (4)

1.2   Describe the rationale for Technology as a school subject. (4)

[8]

QUESTION 2

2.1   Two types of technological knowledge are distinguished. Each of the two types of technological knowledge relates to a certain specific aim in the CAPS. Relate the two types of technological knowledge to the specific aims, and provide reasons for the relationship. (4)

2.2   In solving technological problems one applies a number of procedural stages. Name the stages you will follow in solving such a problem in the order you would apply them. (10)

[14]

QUESTION 3

3.1   Choose and briefly motivate the instructional approach and strategy you would use when learners have to discuss the project brief in order to state the problem. (3)

3.2   Choose and briefly motivate the instructional approach and strategy you would use to teach learners about the mechanical advantage of levers.

(3)

3.3   Choose and briefly motivate the instructional approach and strategy you would use when learners have to work on their own during the making stage. (3)

[9]

QUESTION 4

4.1   Briefly demonstrate how you would determine whether your learners have the required pre-knowledge before you start teaching new content by referring to the type of assessment and technique/instrument involved.

(3)

4.2   Would you regard this type of assessment as formal or informal assessment? Motivate your answer. (2)

[5]

QUESTION 5

5.1   Write your name and student number on the lesson plan template provided.   Use this lesson plan template and design a lesson on the following:

- Grade 9
- Term 2
- Focus: **Mechanical systems and control**
- Content, concepts and skills: **Pneumatic and Hydraulic systems**
- Stage: **Investigation.**   (21)

5.2   Design a suitable assessment instrument for the lesson you designed in 5.1.

(8)

5.3   In order for a teacher to constantly improve it is necessary to reflect on his/her teaching and PCK. Briefly demonstrate how this practice can ensure effective teaching and learning?   (3)
                                                                                              [32]

QUESTION 6

Hands-on activities are essential during the making stage of the technological process.   Briefly demonstrate how you would manage this type of activity in your workshop by referring to the following:

6.1   Tools and equipment;   (2)

6.2   Materials and consumables; and   (2)

6.3   Time management.   (2)
                                                                                              [6]

QUESTION 7

A teaching philosophy is a statement that you craft to guide you as a technology teacher.   In constructing such a philosophy you should try and answer certain questions you will ask yourself.   Briefly discuss at least four (4) questions you will ask yourself in this regard.

[8]

QUESTION 8

Read the passage below and answer the questions that follow.

India set to outlaw six single-use plastic products on October 2 – sources
(Reuters.com)

NEW DELHI (Reuters) - India is set to impose a nationwide ban on plastic bags, cups and straws on Oct. 2, officials said, in its most sweeping measure yet to stamp out single-use plastics from cities and villages that rank among the world's most polluted. Prime Minister Narendra Modi, who is leading efforts to scrap such plastics by 2022, is set to launch the campaign with a ban on as many as six items on Oct. 2, the birth anniversary of independence leader Mahatma Gandhi, two officials said. These include plastic bags, cups, plates, small bottles, straws and certain types of sachets, said the officials, who asked not to be identified, in line with government policy. "The ban will be comprehensive and will cover manufacturing, usage and import of such items," one official said. India's environment and housing ministries, the two main ministries leading the drive, did not respond to emails from Reuters to seek comment.

In an Independence Day speech on Aug. 15, Modi had urged people and government agencies to "take the first big step" on Oct. 2 towards freeing India of single-use plastic. Concerns are growing worldwide about plastic pollution, with a particular focus on the oceans, where nearly 50% of single-use plastic products end up, killing marine life and entering the human food chain, studies show. The European Union plans to ban single-use plastic items such as straws, forks, knives and cotton buds by 2021. China's commercial hub of Shanghai is gradually reining in use of single-use plastics in catering, and its island province of Hainan has already vowed to completely eliminate single-use plastic by 2025.

India lacks an organized system for management of plastic waste, leading to widespread littering across its towns and cities. The ban on the first six items of single-use plastics will clip 5% to 10% from India's annual consumption of about 14 million tonnes of plastic, the first official said. Penalties for violations of the ban will probably take effect after an initial six-month period to allow people time to adopt alternatives, officials said. Some Indian states have already outlawed polythene bags.

The federal government also plans tougher environmental standards for plastic products and will insist on the use of recyclable plastic only, the first source said. It will also ask e-commerce companies to cut back on plastic packaging that makes up nearly 40% of India's annual plastic consumption, officials say. Cheap smartphones and a surge in the number of internet users have boosted orders for e-commerce companies, such as Amazon.com Inc and Walmart Inc's Flipkart, which wrap their wares - from books and medicines to cigarettes and cosmetics - in plastic, pushing up consumption.

Reporting by Neha Dasgupta and Mayank Bhardwaj; Editing by Sanjeev Miglani and Clarence Fernandez

8.1 Briefly relate the case study above to at least three values presented in technology education literature by naming the value and briefly explaining how the case study relates to the specific value. (6)

8.2 Briefly explain why technology is said to be value laden. (3)

8.3 Briefly discuss the importance of a project brief that relates to the current value system of the students. (2)

[11]

QUESTION 9

9.1 Technological development cannot take place without natural resources. Briefly illustrate the relationship between technology and the natural world by referring to the impact of technology on the environment. (4)

9.2 Gender inequality is a common problem in the technological world. Distinguish between the various ways in which teachers typically deal with this issue in a technology classroom. (5)

[9]

TOTAL: 100

_____

LESSON PLAN TEMPLATE

NAME: _____ STUDENT NUMBER:_____

SUBJECT:_____

PHASE: _____

GRADE: _____

TITLE/TOPIC OF LESSON:_____

1.1 **SITUATION ANALYSIS** (Who? When? Where?)

_____
_____
_____
_____
_____

(3)

1.2 **LEARNING OUTCOMES/SPECIFIC AIMS** (What for?)

Curriculum and Assessment Policy Statement (CAPS), p. _____

_____
_____

(2)

1.3. **LESSON OBJECTIVE** (For the project – all ten stages) (What for?)

_____
_____
_____
_____

(2)

STAGE: *Investigation*

2.1. **STAGE OBJECTIVE** (What for?)

_____
_____
_____
_____

(2)

2.2.　**LEARNING CONTENT** (What?)

Procedural knowledge: (Thinking processes and skills)

_____

_____

_____

(2)

Conceptual knowledge (Factual knowledge: Definitions, concepts, rules, etc.)

_____

_____

_____

_____

(2)

CURRICULUM AND ASSESSMENT POLICY STATEMENT (CAPS)
Focus/Content, concepts and skills, p. _____   _____   _____   _____   _____   _____   _____   _____

(3)

2.3.　**TEACHER ACTIVITIES** (How?)

2.3.1　Setting the context (Introduction)

_____

_____

_____

_____

(3)

2.3.2　Instruction

a)　Instructional approach

_____

_____

_____

(2)

b)   Instructional strategy(ies)

_____

_____

_____

(2)

c)   Instructional skill(s)

_____

_____

_____

(2)

2.4.   **LEARNER ACTIVITIES** (Types of tasks) (What for?)

_____

_____

_____

(2)

2.5.   **RESOURCES**

2.5.1   Instructional media

_____

_____

_____

(2)

2.6.   **QUESTIONS** (Questions to be asked: relate to Bloom's taxonomy)

_____

_____

_____

_____

_____

_____

(3)

2.7   **ASSESSMENT**

National Curriculum Statement (NCS), p. _____

(1)

Assessment standard (Demonstration of learner achievement)

_____

_____

_____

_____ (2)

2.7.1   Type (Person, time, manner)

_____

_____

_____

(3)

2.7.2   Technique

_____

_____

_____

(1)

2.7.3   Instrument

_____

_____

_____

(1)

$[42 \div 2]$ = **[21]**

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