UNIVERSITY OF JOHANNESBURG

FACULTY	: Education
DEPARTMENT	: Science and Technology Education
CAMPUS	: APK
MODULE	: TEACHING METHODOLOGY AND PRACTICUM: FET MECHANICAL TECHNOLOGY (MPFMTY1)
SEMESTER	: Second
EXAM	: SSA January 2019

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MODERATOR : MR J COETZEE (UFS)

DURATION : 2 HOURS **MARKS** : 100

NUMBER OF PAGES: 10 PAGES

INSTRUCTIONS:

1. Answer ALL THE QUESTIONS.
2. Number your answers clearly.
3. You may consult the NCS and CAPS.

QUESTION 1

1.1 Briefly explain the nature of mechanical technology. (3)

1.2 Briefly describe the rationale for Mechanical Technology as a school subject. (3)

[6]

QUESTION 2

2.1 The CAPS document serves as a guideline for teaching Mechanical Technology. Analyse the document and comment on the various aspects of teaching it provides guidelines for.

[6]

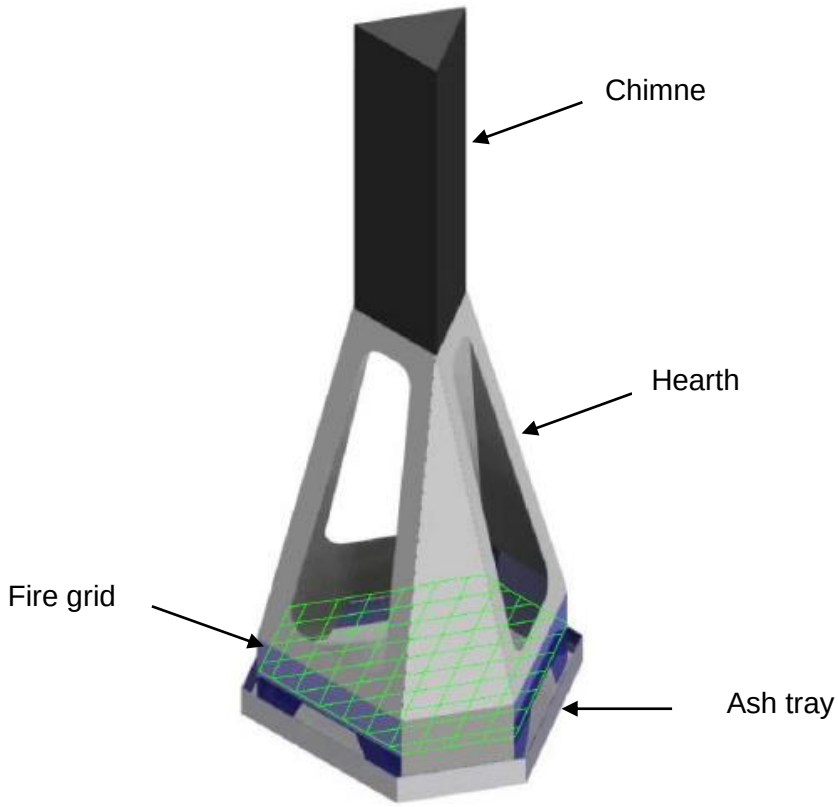
QUESTION 3

Practical assessment tasks (PAT) are designed to develop and demonstrate a learner's ability to integrate a variety of skills. The following task is given in the guidelines for a PAT in Grade 12 for Mechanical Technology:

Task: Welding: - Manufacturing of fire place

Instructions:

You are required to make a fire place using 2mm stainless steel/mild steel sheet metal.



Pictorial view of the fire place

3.1 Briefly describe by means of a step by step explanation how you as Mechanical Technology teacher will facilitate the execution of this task. (10)

3.2 What conceptual knowledge will the learner need to execute this task successfully? (6)

3.3 It is stated in the PAT that the learner's work should not leave the classroom/workshop. Briefly discuss the educational value of this statement. (4)

3.4 Both formal and informal assessment should be conducted during the execution of the PAT as well as after completion. Briefly discuss how you will assess this process. (10)

[30]

QUESTION 4

When teaching the learners a new skill during a practical session the teacher will start the lesson with a more behavioral instructional approach and proceed towards a more constructivist instructional approach. Briefly motivate this way of teaching by referring to the following:

- Focus;
- Educator control;
- Thinking; and
- Strategies. **[8]**

QUESTION 5

5.1 Write your name and student number on the lesson plan template provided at the end of this question paper. Use this lesson plan template and design a 40 minute lesson on the following:

- Area of specialisation: **Welding and Metalwork**
- Grade: **10**
- Term: **1**
- Topic: **Safety (Generic) – Hand tools**

Note: According to the CAPS, twelve (12) hours are allocated for teaching generic safety requirements. This is equal to eighteen (18) periods of 40 minutes each.

[25]

QUESTION 6

Due to the fact that the practice of teaching is complex, it is essential that teachers, as reflective practitioners, intentionally construct a teaching philosophy. Discuss your own teaching philosophy as a Mechanical Technology teacher by referring to the following aspects:

- Your objectives as a teacher;
- Methods to be used to achieve these objectives;
- How the effectiveness of these objectives and methods can be measured; and
- Your view on why teaching is important.

[8]

QUESTION 7

Worker killed in welding accident

In late April, OSHA issued fines against two companies when a storage tank a worker was welding on exploded and killed him. South Dakota Soybean Processors of Volga was fined a total of $25,510 and CCM Welding Repair and Fabrication of Minneota, Minn. was fined $11,200. Neither company measured the flammability of the soap stock inside the tank, vapors from which caught fire and caused the explosion.
Source: sunnewsreport.com

7.1 Analyse the news clip above and briefly discuss the topic(s) in the CAPS which relates to the incident described above. (3)

7.2 How do you think this incident could have been prevented? (4)

7.3 The news clip above can be used to bring reality into the classroom. Briefly explain how you would do it. What teaching approach and what strategy(s) would you use? (4)

[11]

QUESTION 8

You spent seven weeks at a school for the purpose of work integrated learning (WIL). Write a short reflection on the challenges and the good practices that you have experienced. Conclude your reflection by elaborating on how you think these experiences will prepare you for your career as a Mechanical Technology teacher.

[6]

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 **SPECIFIC AIMS** (What for?)

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

_____

_____

(2)

1.3. **LESSON OBJECTIVE** (What for?)

_____

_____

_____

(2)

2.1. **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. _____

(4)

2.2. **TEACHER ACTIVITIES** (How?)

2.2.1 Setting the context (Introduction)

_____

_____

_____

(3)

2.2.2 Instruction

a) Instructional approach

(2)

b) Instructional strategy(ies)

(2)

c) Instructional skill(s)

(3)

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

(2)

2.4. **RESOURCES**

2.4.1 Instructional media

(2)

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

Formulate four (4) questions, one (1) on the lower cognitive level (knowledge), two (2) on the middle cognitive level (comprehension and application) and one (1) on the higher cognitive level (analysis, evaluation and synthesis)

(16)

2.6 **ASSESSMENT**

2.6.1 Type (Person, time, manner)

(3)

2.6.2 Technique

(1)

2.6.3 Instrument

(1)

[50 ÷ 2] = **[25]**