



UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
MAY / JUNE
EXAMINATION 2016

PROGRAMME: B.Ed. (SENIOR AND FET PHASE)
MODULE: TEACHING METHODOLOGY AND PRACTICE:
 SP TECHNOLOGY AND FET ENGINEERING GRAPHICS AND
 DESIGN
CODE: MFSPTA3
TIME: 2 hours
MARKS: 100
EXAMINER: Prof PJ Ankiewicz
 Mr W Engelbrecht
MODERATOR: Dr CF van As
 (This paper consists of 4 pages)

INSTRUCTIONS

Read the following instructions carefully before answering the questions:

1. You may answer the questions in Afrikaans or English.
2. You may consult the NCS, CAPS and your lesson plans.

QUESTION 1

- 1.1 Discuss the key elements of the phenomenon *technology*. (5)
 - 1.2 Give a brief explanation of the concept *technology education*. (3)
 - 1.3 Two types of technological knowledge are distinguished. Each of the two types of technological knowledge relates to a certain learning outcome in the NCS and a specific aim in the CAPS. Relate the two types of technological knowledge to the learning outcomes and specific aims, and provide reasons for the relationship. (6)
 - 1.4 Distinguish between the two types of knowledge referred to in 1.3 by discussing the nature of the types of knowledge respectively. (4)
 - 1.5 Briefly explain the most important difference between teaching these two types of knowledge named in 1.3. (3)
- (21)**

QUESTION 2

You have to plan a technology lesson for learners in Grade 8.

- 2.1 Briefly describe the information regarding the content of the subject, contained in the NCS and the CAPS documents respectively, and how it will assist you. (5)
- 2.2 Where in each of the documents will you find technological conceptual knowledge of material processing for Grade 8? Name the document, give the page number, and quote a few examples directly. (4)
(9)

QUESTION 3

- 3.1 Distinguish between a learning outcome/specific aim and a lesson outcome/objective. (2)
- 3.2 Formulate a stage outcome/objective for Grade 8 in electrical systems and control for the *Investigation stage*. (2)
(4)

QUESTION 4

Grade 8 technology learners are supposed to know the different forces acting on structural members (CAPS, p.22).

- 4.1 Distinguish between the different forces that act on structural members by referring to freehand sketches and giving an example of each. (8)
- 4.2 Explain the forces acting on a beam suspended between two points by referring to a labelled freehand sketch. (5)
- 4.3 How would you teach the different forces acting on structural members to Grade 8 technology learners so that they would understand and remember the differences between the different forces? Refer to your instructional approach and strategies, and explain how you would teach the concepts mentioned in 4.2. (4)
(17)

QUESTION 5

- 5.1 Evaluate the following statement: "There must be a relation between a lesson outcome/objective and assessment". (3)
- 5.2 Briefly discuss the basic principles of assessment. (7)
(10)

QUESTION 6

You have to plan an Engineering Graphics and Design (EGD) lesson for learners in Grade 10.

- 6.1 Where in each of the policy documents will you find reference to mechanical drawing for Grade 10? Name the document, give the page number, and quote a few examples directly. (6)
- 6.2 Analyze the content specified by the CAPS under the topic mechanical drawings for Grade 10 and distil the "Big ideas". (3)
- 6.3 How can the use of Pedagogical and Professional experience Repertoires (PaP-eR) support effective teaching and learning? (3)
(12)

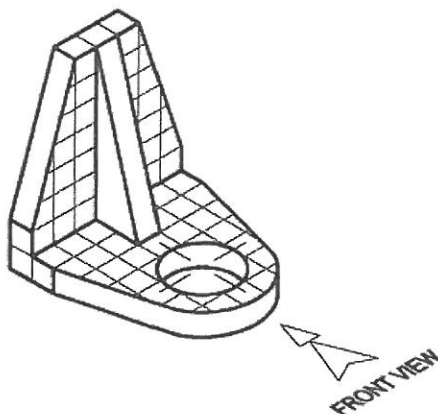
QUESTION 7

- 7.1 Distinguish between the behavioural and constructivist instructional approaches. (4)
- 7.2 It is sometimes necessary to follow the behavioural instructional approach (direct instruction) in the EGD classroom. Justify this statement and illustrate your answer with an example from Grade 10 EGD. (4)
- 7.3 The nature of technology education demands that the behavioural instructional approach sometimes be complemented by the constructivist instructional approach. Justify why this is necessary. (2)
(10)

QUESTION 8

Grade 10 EGD learners should be able to make first angle orthographic drawings (CAPS, p.17).

- 8.1 Draw a freehand first angle orthographic projection of the object shown below in your exam book. (9)



- 8.2 What is the single discernable factor which distinguishes a first angle orthographic projection from a third angle orthographic projection? (2)
- 8.3 Briefly explain how you would teach the difference between first and third angle orthographic projection to Grade 10 EGD learners. Refer to your instructional approach and strategies, and explain how you would convey the concepts around the single discernable factor mentioned in 8.2. (6)
- (17)

TOTAL: 100

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