



UNIVERSITY OF JOHANNESBURG
FACULTY OF EDUCATION
DECEMBER SUPPLEMENTARY
EXAMINATION 2016

PROGRAMME: B Ed (SENIOR AND FET PHASE)
MODULE: TEACHING METHODOLOGY AND PRACTICUM:
 CIVIL TECHNOLOGY
CODE: MOFPCB3
TIME: 1 hour
MARKS: 50
EXAMINER: Mr W Engelbrecht
MODERATOR: Dr CF van As (UJ)
 (This paper consists of **four (4)** pages)

INSTRUCTIONS

Read the following instructions carefully before answering the questions:

1. You may answer the questions in English or Afrikaans.
2. Answer all the questions.

QUESTION 1

- 1.1 Civil Engineering and the building industry are constantly changing our environment to create a better world for us to live in. These developments have a huge impact on the natural environment. Briefly discuss this statement. (4)
- 1.1 Where in the curriculum is the above mentioned matter addressed? (2)
- (6)**

QUESTION 2

Practical Assessment Tasks (PATs) are designed to develop and demonstrate a learner's ability to integrate a variety of skills in order to solve a problem.

The following scenario (project brief) is given in the guidelines for a PAT in Civil Technology:

A business group developing town houses invited learners to enter their designs of an open plan kitchen layout into a competition. It is expected of you to design an open-plan kitchen including a breakfast nook for a town house with an area of 80m². It is also expected of you to make one of the indicated options.

1. SPECIFICATIONS

The following requirements will be applicable to the design of the open-plan kitchen:

- Total area of the kitchen is approximately 15m².
- All cupboards and doors to be made from 16mm melamine chipboard.
- The working surface must be made of 32mm thick material.

Provision must be made for the following in the open-plan kitchen:

- Fridge
- Electric stove
- Dish washer
- Microwave oven
- Wash-up area with kitchen sink
- Washing machine
- Tumble-drier
- Base units
- Wall suspended units
- Broom cupboard
- Breakfast nook to accommodate 4 people

- 2.1 Identify three (3) big ideas relating to this PAT. (6)
- 2.2 Analyse the PAT concerned and identify the conceptual knowledge needed by the learner to execute this task successfully. (8)
- 2.3 Analyse the PAT concerned and identify the practical skills needed by the learner to make the model. (6)

- 2.4 The PAT is done over the first three terms of each year, and consists of three phases. Name them. (3)
- 2.5 It is stated in the PAT document that the learner's work should not leave the classroom/workshop. Briefly discuss the educational value of this statement. (4)
- 2.6 What will you regard the educational value to be by presenting the learners with the assessment tools which include the memorandum for the working drawings, a rubric for assessment of the design portfolio and a rubric for assessment of the final product/model? (4)
- (31)**

QUESTION 3

Read the passage below and answer the questions that follow:

No structural movement prior to M1 bridge collapse - expert

2016-07-07 14:57

Karabo Ngoepe, News24

Pretoria - A professor says there was no structural movement on the M1/Grayston Drive pedestrian and cyclist bridge before it collapsed.

"On the day of the collapse, photographs and videos were taken, but they didn't show any structural movement prior to the collapse," said Professor Johannes Mostert, head of the department of the Materials Science and Metallurgical Engineering at the University of Pretoria.

"A combination of still photographs and video demonstrates that the initiation of the collapse was a significant displacement of the girders in an actual direction, together with the separation of the eastern and western assemblies at a later stage, followed by a downward rotation of the two assemblies and the collapse."

Mostert was giving evidence at the inquiry into the structural collapse. A driver of a minibus taxi and a man in a Toyota Fortuner were killed during the collapse. Mostert told the commission that he had compiled a report from evidence he had gathered following the collapse. The bridge over the M1 at Grayston Drive collapsed on October 14 2015.

- 3.1 Briefly discuss the values and possible contentious issues relating to this incident. (6)
 - 3.2 Why is it important to know if there were any structural movement prior to M1 bridge collapse? Motivate your answer. (3)
 - 3.3 Briefly describe the teaching approach and strategy you will follow to sensitise learners about moral dilemmas such as structural failure. (4)
- (13)**

TOTAL: 50

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