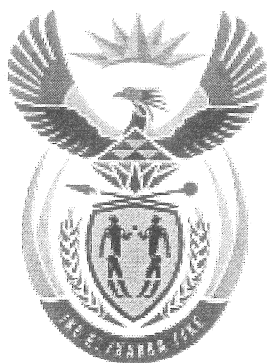
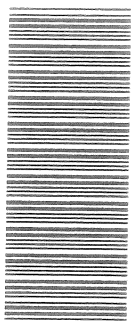


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# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

**T840(E)(N23)T  
NOVEMBER EXAMINATION**

**NON-NATIONAL CERTIFICATE: ENGINEERING  
CERTIFICATE OF COMPETENCY**

**LEGAL KNOWLEDGE: MINES**

**(13050026)**

**23 November 2015 (X-Paper)  
09:00–12:00**

**CLOSED-BOOK EXAMINATION**

**Non-programmable calculators may be used.**

**This question paper consists of 4 pages.**



**QUESTION 1**

- 1.1 As an employer of a mine you must decide if you require a certificated engineer or a competent person to be in charge of machinery.

Your mine has the following equipment:

- Seven Diesel driven dump trucks with an engine size of 95 kW;
- Power supply at 380V through a 1 500 kVA Transformer;
- Conveyor belt electrical motor of 56 kW;
- Ball mill with a electrical motor size of 100 kW;
- Screening plant with small electrical machines of 750 kW;
- One coal fired boiler of 190 kW; and
- An emergency generator of 500 kVA.

Please advise and support your decision and show your calculations.

- 1.2 At a mine a person or class of person may exercise control over machinery subject to certain conditions.

What are these conditions?

1761 kW

$$P = \frac{S}{V} = \frac{kVA}{V}$$

$$P = IV$$

$$I = \frac{P}{V} = \frac{kVA}{V}$$

$$I = \frac{1500 \times 10^3}{380}$$

$$(5) = 3947,4 A$$

$$[10]$$

$$P = IV$$

$$= 3947,4 \times 380$$

$$= 1500 kW$$

**QUESTION 2**

As an employer you are required to report the death of a person at a mine.

What other incidents related to persons have to be reported?

[10]

**QUESTION 3**

A works is any place where any person carries out training at a central rescue station.

What other areas are classified as works?

[10]

**QUESTION 4**

- 4.1 As an engineer at a mine when is a mine required to install a hoisting arrangement? (2)

- 4.2 As an engineer at a mine when are you are required to install a ladder? (2)

- 4.3 There are two winding plants on your shaft that are able to raise employees to surface but one of them is a standby winder.

As an engineer what are the conditions you are expected to comply with on the mine in connection with these winders?

(6)  
[10]

**DEPARTMENT OF HIGHER EDUCATION AND TRAINING**  
**REPUBLIC OF SOUTH AFRICA**  
NON-NATIONAL CERTIFICATE: ENGINEERING  
CERTIFICATE OF COMPETENCY  
LEGAL KNOWLEDGE: MINES  
TIME: 3 HOURS  
MARKS: 100

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**INSTRUCTIONS AND INFORMATION**

1. Answer ALL the questions.
  2. Read ALL the questions carefully.
  3. Number the answers according to the numbering system used in this question paper.
  4. Rule off across the page on completion of EACH question.
  5. ALL calculations must be shown.
  6. Candidates who have NOT been accepted by the Commission of Examiners, will be disqualified.
  7. Candidates arriving 30 MINUTES late will NOT be allowed to sit for the examination.
  8. Candidates are NOT allowed to leave the examination room before ONE HOUR has elapsed since the examination had begun.
  9. Questions are based on the requirements and practical application of the Mine Health and Safety Act (MHSA), 1996 (Act No. 29 of 1996) and the regulations framed under Schedule 4. Answers must be confined to these requirements.
  10. NO cellular phones are allowed in the examination room.
  11. Write neatly and legibly.
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**QUESTION 5**

- 5.1 Every employer must identify the hazards to health and safety to which employees may be exposed.

What else is required of him in regard to these hazards? (4)

- 5.2 The employer after consulting with the Health and Safety Committee must determine measures to address these hazards.

What are these measures? (6)  
[10]

**QUESTION 6**

As an employer at a mine that has a Residue Deposit you are required to draw up a code of practice for the mine residue deposit.

What are the areas that must be addressed in the code of practice? [10]

**QUESTION 7**

List at least TEN duties of a winding engine driver? [10]

**QUESTION 8**

You are the engineer in charge of the Trackless Mobile Workshop. You have a compressor to pump up the tyres.

What are the requirements for particulars to be marked on the pressure vessel? [10]

**QUESTION 9**

You have a chairlift in your area of responsibility.

State the measures to be taken regarding the transport of goods and persons, state also the requirements for the inspection of the chairlift. [10]

**QUESTION 10**

You are the Engineer in charge of the underground rail-bound transport.

In terms of the Mine Health and Safety Act regulations what are the reasonable measures that need to be taken by the Employer? [10]

**TOTAL: 100**

