



higher education  
& training

Department:  
Higher Education and Training  
REPUBLIC OF SOUTH AFRICA

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NOVEMBER EXAMINATION

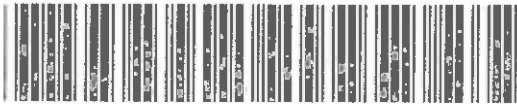
NONNATIONAL CERTIFICATE: ENGINEERING CERTIFICATE OF  
COMPETENCY

**OCCUPATIONAL HEALTH AND SAFETY ACT**

(13050046)

21 November 2016 (X-Paper)  
09:00–12:00

This question paper consists of 9 pages.



OCCHESAACT

**DEPARTMENT OF HIGHER EDUCATION AND TRAINING  
REPUBLIC OF SOUTH AFRICA**

**NONNATIONAL CERTIFICATE: ENGINEERING CERTIFICATE OF  
COMPETENCY**

**OCCUPATIONAL HEALTH AND SAFETY ACT**

**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. Write neatly and legibly.
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**QUESTION 1**

- 1.1 Define the following terms as given in the Occupational Health and Safety Act:
- 1.1.1 Chief executive officer (CEO) (1)
  - 1.1.2 Employer (1)
  - 1.1.3 Medical surveillance (1)
  - 1.1.4 Reasonably practicable (2)
- 1.2 Name ONE duty of the CEO. (1)
- 1.3 To whom may the CEO assign his/her duties? (1)
- 1.4 Under what conditions may the CEO assign his/her duties to someone else? (1)
- 1.5 When may a machine not be sold? (2)
- [10]**

**QUESTION 2**

- 2.1 A health and safety representative may perform various functions in respect of the workplace or section of the workplace for which he/she has been designated and is also entitled to perform certain other functions.
- 2.1.1 Name TWO functions a health and safety representative may perform. (2)
  - 2.1.2 Name TWO functions a health and safety representative is entitled to perform. (2)
  - 2.1.3 When must health and safety representatives carry out their functions and undergo training? (1)
- 2.2 What records must a health and safety committee keep? (2)
- 2.3 The chief inspector has directed an inspector to conduct a formal inquiry into an incident which occurred at the workplace.
- Name THREE persons who have an interest in the issue of the formal inquiry. (3)
- [10]**

**QUESTION 3**

- 3.1 An inspector notified you of a date and time he intends to carry out an inspection on your premises.
- 3.1.1 On what grounds will you allow the inspector to enter the premises? (1)
- 3.1.2 What may the inspector require from you during his entire visit of the workplace? (2)
- 3.2 As an employer you need to keep a record of all serious incidents reportable to an inspector as well as other incidents which resulted in the person concerned receiving medical treatment other than first aid.
- 3.2.1 In what format must this record be kept? (1)
- 3.2.2 Who must investigate these recorded incidents? (1)
- 3.2.3 When must these incidents be investigated? (1)
- 3.2.4 Who must examine these records? (1)
- 3.3 A serious incident occurred and you have to report it on WCL1 to the Department of Labour.
- 3.3.1 When must you submit this report? (1)
- 3.3.2 If the injured person suffered the loss of a limb, how must you report it? (1)
- 3.3.3 If the injured person dies after notice of the incident was given, what must you do? (1)
- [10]**

**QUESTION 4**

- 4.1 Define the following terms as given in the Environmental Regulations for Workplaces of 1987 as amended:
- 4.1.1 Acclimatised
- 4.1.2 Illuminance
- 4.1.3 Working plane
- (3 × 1) (3)

- 4.2 You have to ensure that every workplace in your undertaking is lighted in accordance with the illuminance values specified in the schedule to the regulations.
- 4.2.1 What must the average illuminance be at floor level within five metres of a task? (1)
- 4.2.2 What must you do regarding glare? (1)
- 4.2.3 What must you do regarding lighting on rotating machinery? (1)
- 4.3 You have to ensure that every workplace in your undertaking is ventilated either by natural or mechanical means to ensure that the air breathed by employees does not endanger their safety.
- Name FOUR specific levels or limits that must not be exceeded. (4)
- [10]

QUESTION 5

- 5.1 Define the following terms as given in the Driven Machinery Regulations of 2015:
- 5.1.1 Block and tackle
- 5.1.2 Lifting machine (2 × 1) (2)
- 5.2 Name TWO requirements you have to comply with when you use a swing or radial saw that is moved towards the material. (2)
- 5.3 Name TWO requirements you have to comply with when you use a portable power-driven circular saw. (2)
- 5.4 You have to ensure that the rope of every lifting machine has a factor of safety prescribed by the standard to which the lifting machine was manufactured.
- In the absence of such prescribed safety factor, what safety factor must you use with regard to the safe working load of the machine for:
- 5.4.1 Steel wire ropes
- 5.4.2 Chains (2 × 1) (2)
- 5.5 5.5.1 Who may operate a lifting machine? (1)
- 5.5.2 Who may operate lifting machines that are listed in the code of practice? (1)

[10]

**QUESTION 6**

- 6.1 Define the following terms as given in the Regulations for Hazardous Chemical Substances (HCS) of 1995 as amended:
    - 6.1.1 Measurement programme
    - 6.1.2 OEL (2 × 1) (2)
  
  - 6.2 A concern has been raised that employees may inhale an HCS and a measurement programme of the airborne concentration of the HCS needs to be carried out.
    - 6.2.1 When must the measurement programme be carried out? (1)
    - 6.2.2 Who must carry out the measurement programme? (1)
  
  - 6.3 Where reasonably practicable you must control the exposure of an employee to an HCS by various methods including engineering control measures.
    - 6.3.1 Name TWO engineering control measures. (2)
    - 6.3.2 Name TWO methods of controlling the exposure of employees. (2)
    - 6.3.3 Who must examine and test engineering control measures? (1)
    - 6.3.4 At what intervals must engineering control measures be examined and tested? (1)
- [10]**

**QUESTION 7**

- 7.1 Define the following terms as given in the Electrical Machinery Regulations of 2011:
  - 7.1.1 Portable electric tool
  - 7.1.2 Miniature substation (2 × 1) (2)
  
- 7.2 You have to carry out a risk assessment to determine whether your main substation building and its facilities comply with the requirements for switchgear and transformer premises.
  - 7.2.1 What do the regulations require regarding the size and workspace for a substation? (1)
  - 7.2.2 What do the regulations require regarding ventilation in a substation? (1)

- 7.2.3 Name TWO other requirements that a substation must comply with. (2)
- 7.3 You have to design and erect a 132 kV overhead power line crossing over a proclaimed road.
- 7.3.1 Where must the structures at the crossing be located? (1)
- 7.3.2 Name ONE requirement to be complied with to ensure the safety of the conductors in the crossing span? (1)
- 7.3.3 What is required where a building or structure is under or in the vicinity of the power line? (1)
- 7.4 The gantry crane in your stock yard is supplied through bare trolley wires on the gantry.
- Name ONE safety requirement for these bare conductors. (1)
- [10]

### QUESTION 8

- 8.1 Define the following terms as given in the Construction Regulations of 2014:
- 8.1.1 Construction work permit
- 8.1.2 Temporary works (2 × 1) (2)
- 8.2 What must the client do when he/she wants a design change which will require additional work to be performed? (1)
- 8.3 What must the client do where a work permit for a project is required? (1)
- 8.4 Name TWO items which the designer of temporary works must comply with. (2)
- 8.5 Name TWO requirements a contractor has to comply with, in addition to compliance with the provisions for the stacking of articles in the General Safety Regulations, for the stacking of material on a construction site. (2)
- 8.6 Name TWO steps a contractor must take on the construction site, in addition to compliance with the Environmental Regulations for Workplaces, with regard to fire precautions in confined spaces in which flammable gasses can cause a danger. (2)
- [10]

**QUESTION 9**

- 9.1 Define *repair* as given in the Pressure Equipment Regulations of 2009. (1)
- 9.2 The 36-monthly crack detection test of the critical welds of a fire-tube steam generator revealed a defect whereby the safety of persons may be endangered.
- 9.2.1 Who must report this defect and to whom must it be reported? (1)
- 9.2.2 What option is there regarding further use of the steam generator? (1)
- 9.3 In order to heat certain canned products a new autoclave is installed which, for operational purposes, is equipped with a quick-actuating door.  
Name TWO requirements for the interlock on the door. (2)
- 9.4 A gas reticulation system for the gas burners of new curing ovens in a factory has been installed.
- 9.4.1 Who must install this gas system? (1)
- 9.4.2 What do you need before commissioning the gas system after installation? (1)
- 9.5 Define *hearing protective equipment* as given in the Noise-induced Hearing Loss Regulations 2003. (1)
- 9.6 You are providing reusable hearing protective equipment to employees working in the noise zone
- 9.6.1 Under which ONE condition may reusable hearing protectors be used? (1)
- 9.6.2 How must hearing protective equipment be stored when not in use? (1)
- [10]**



**QUESTION 10**

- 10.1 Define *flammable liquid* as given in the General Safety Regulations of 1986 as amended. (1)
- 10.2 The spray booth at a factory is specially constructed of fire-resisting material with proper ventilation and a floor area of 30 m<sup>2</sup>.  
Give the requirements for:
- 10.2.1 Entrances and doors
- 10.2.2 Inspection windows (2 × 1) (2)
- 10.3 Flammable liquids are kept in a proper flammable liquid store.
- 10.3.1 Name ONE ventilation requirement for the store. (1)
- 10.3.2 Name ONE requirement for the store with regard to containing the liquid in case of a spillage? (1)
- 10.4 Define *engineering control measures* as given in the Regulations for Hazardous Biological Agents (HBA) of 2001. (1)
- 10.5 The HCS regulations require that the exposure of persons to an HBA in the working environment is either prevented or adequately controlled.  
Name TWO aspects engineering control measures may include. (2)
- 10.6 What must you do in order to issue previously used personal protective equipment to employees? (2)
- [10]**
- TOTAL: 100**