higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

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NON-NATIONAL CERTIFICATE

ENGINEERING CERTIFICATE OF COMPETENCY

OCCUPATIONAL HEALTH AND SAFETY ACT

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NON-NATIONAL CERTIFICATE
ENGINEERING CERTIFICATE OF COMPETENCY
OCCUPATIONAL HEALTH AND SAFETY ACT
TIME: 3 HOURS
MARKS: 100

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 used in the Occupational Health and Safety Act:

1.1.1 Office

1.1.2 Shop

1.1.3 Plant

1.1.4 Premises

(4 × 1) (4)

1.2 Every fatal incident or other incident in which a person suffers the loss of a limb or is likely to be unable for a period of 14 days to work and any major incident shall forthwith be reported to the provincial director.

1.2.1 Name THREE other cases where there was no injury although the health or safety of persons was endangered, which must also be reported to an inspector. (3)

1.2.2 In the event of an incident in which a person died, or was injured to such an extent that he is likely to die, or suffered the loss of a limb or part of a limb, no person shall without the consent of an inspector disturb the site at which the incident occurred or remove any article or substance involved in the incident therefrom: Provided that such action may be taken as is necessary to prevent a further incident, to remove the injured or dead, or to rescue persons from danger.

Name TWO cases when the provisions in QUESTION 1.2.1 and QUESTION 1.2.2 above shall not apply. (2)

1.3 A medical practitioner who examines or treats a person for a disease described in the Second Schedule to the Workmen's Compensation Act, 1941 (Act No. 30 of 1941), or any other disease which he believes arose out of that person's employment, shall within the prescribed period and in the prescribed manner report the case and inform that person accordingly.

To whom must the medical practitioner report the case? (1)

[10]

QUESTION 2

2.1 When is it a requirement to designate health and safety representatives? (1)

2.2 Who is eligible for designation as a health and safety representative? (1)

2.3 Your company operates four different factories on four different premises and at each a different product is manufactured. At factory A there are 54 employees, at factory B there are 33 employees, at factory C there are 99 employees and at factory D there are 451 employees.

How many health and safety representatives must you designate at each of the following factories?

2.3.1 Factory A

2.3.2 Factory B

2.3.3 Factory C

2.3.4 Factory D

(4 × 1) (4)

2.4 At which of the above factories must you appoint a health and safety committee? (1)

2.5 A health and safety committee shall consist of such number of members as the employer may determine from time to time.

2.5.1 How do you determine the number of members of a health and safety committee? (1)

2.5.2 Where two or more health and safety committees have been established in respect of a workplace, on which committee must the health and safety representatives serve? (1)

2.6 How often must a health and safety committee meet? (1)

[10]

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QUESTION 3

3.1 In terms of the General Administrative Regulations, 2003 an employer or user shall keep at a workplace a record of all incidents which he or she is required to report in terms of section 24 of the act and also of any other incident which resulted in the person concerned having had to receive medical treatment other than first aid. The employer or user shall also cause such incidents to be investigated by a person appointed by him or her, by a health and safety representative or a member of a health and safety committee.

3.1.1 In what format must the record of incidents be kept? (1)

3.1.2 When must the incidents be investigated? (1)

3.1.3 When must the investigation be finalised? (1)

3.1.4 What must be done with the findings of the investigation? (1)

3.2 There are 159 persons employed on your premises and the required health and safety representatives and a health and safety committee have been designated.

3.2.1 What must you make available to the committee? (1)

3.2.2 For how long must you keep the recommendations made by the committee? (1)

3.3 Define the term *flammable liquid* as given in the General Safety Regulations, 1986 as amended. (1)

3.4 You intend to store and use flammable liquids in a dedicated building on your premises and now have to make provision for fire-fighting equipment.

3.4.1 What must you consider with regards to the fire-fighting equipment? (1)

3.4.2 Who should you consult in this regard? (1)

3.5 When may you permit a person to carry out welding and grinding work in a large, enclosed vessel where there is the possibility that the residue of a substance it contained may ignite or form a dangerous gas under the action of heat? (1)

[10]

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QUESTION 4

4.1 Define the following terms as given in the Driven Machinery Regulations, 2015:

4.1.1 Calender rolls

4.1.2 Transportation plant

4.1.3 Man-cage

(3 × 1) (3)

4.2 Every power-driven machine consisting of two or more rolls rotating in opposite directions, which are less than 75 mm apart, must be guarded for the full length of the in-running side or nip of the rolls where such nip is within the reach of persons.

Name TWO methods by which the operator can be safeguarded. (2)

4.3 The user shall cause the entire installation and all working parts of a transportation plant to be thoroughly examined and subjected to a test.

4.3.1 What test must be carried out? (1)

4.3.2 Who must carry out the examination and test? (1)

4.3.3 What must the person who carry out the test determine? (1)

4.3.4 After the transportation plant was put in service, at what intervals must it be inspected and tested? (1)

4.4 Under what conditions may you use a lifting machine to lift and support a person to perform work at a height of 6,5 m above ground level? (1)

[10]

QUESTION 5

5.1 In terms of the General Machinery Regulations, 1988 every employer or user of machinery shall in writing designate a competent person in full-time capacity in respect of every premises where machinery is being used.

5.1.1 Define *competent person* for a factory where the sum of power generated by machinery on the premises exceeds 1 200 kW, but is less than 3 000 kW. (1)

5.1.2 Define *competent person* for machinery of a municipality used for the distribution of electricity and where the maximum demand over a period of 30 minutes exceeds 3 000 kW, but is less than 10 MW. (1)

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5.2 The sum of power generated by the machinery on your factory premises is 4 000 kW and the competent person (GMR 2) is a certificated engineer.

5.2.1 For what period may you run the factory when the GMR 2 person is on leave or otherwise not able to work? (1)

5.2.2 What must you do regarding a competent person during such absence of a GMR 2 appointee? (1)

5.3 Every employer shall ensure that all machinery used is suitable for the purpose for which it is used and that it is installed, operated and maintained to be safe.

5.3.1 Where the machinery you operate on the premises constitutes a danger to persons, what must you do to your premises? (1)

5.3.2 What must you do to your premises where the machinery which operates unattended on the premises may constitute a danger to persons? (1)

5.4 You are the operator authorised to operate the guillotine.

May you allow any other person to operate the guillotine in your absence? (1)

5.5 What must you do when machinery is likely to threaten the safety of persons if it may unexpectedly be set in motion? (1)

5.6 What shall a person not wear when working in close proximity to moving machinery? (1)

5.7 It will take you less than a minute to adjust the tensioner jockey on a conveyor belt. You opted to trip the conveyor by pulling the trip wire alongside the conveyor and do the adjustment.

Explain whether this is acceptable. (1)
[10]

QUESTION 6

6.1 Define the following terms as given in the Pressure Equipment Regulations, 2009:

6.1.1 Unique mark

6.1.2 Design pressure

(2 × 1) (2)

6.2 Every manufacturer of pressure equipment shall cause it to be marked in accordance with the relevant incorporated health and safety standard.

6.2.1 Name THREE particulars other than the name of manufacturer, country of origin, year of manufacture and manufacturer's serial number, which must be marked on the name plate. (3)

6.2.2 Name TWO additional items which must be included on the name plate in the case of composite pressure equipment. (2)

6.3 As the user of pressure equipment you have to keep a record, open to an inspector, in which the certificate of manufacture and the results of all inspections, tests, modifications and repairs are recorded.

6.3.1 For what period must you keep the original manufacturing records? (1)

6.3.2 What must accompany pressure equipment when you sell it? (1)

6.4 What inspection and test must be carried out on a gas system after installation and before commissioning? (1)

[10]

QUESTION 7

7.1 Define the following terms as given in the Electrical Installation Regulations (EIR) 2009:

7.1.1 Supplier

7.1.2 Electrical contractor

7.1.3 Certificate of compliance

(3 × 1) (3)

7.2 Your company owns a house in town where the previous manager resided but is currently leasing it to a private family.

7.2.1 Who is responsible for the safety of the electrical installation of the house? (1)

7.2.2 Who is responsible for the safety of the conductors between the point of supply and the point of control of that house? (1)

7.3 When may a supplier restrict the application of the incorporated health and safety standards (SANS 10142) when an electrical installation is installed? (1)

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7.4 Only a person registered by the chief inspector as an electrical contractor may perform electrical installation work as an electrical contractor.

What are the requirements with which a person has to comply for registration? (2)

7.5 Only a registered person may issue a certificate of compliance (CoC). A new building on your premises has been completed and the registered person (installation electrician) issued a CoC for the electrical installation.

7.5.1 What documents must he/she use as CoC? (1)

7.5.2 What do the documents state? (1)
[10]

QUESTION 8

8.1 Define the following terms as given in the Electrical Machinery Regulations, 2011.

8.1.1 Electric fence

8.1.2 Electric fence system

(2 × 1) (2)

8.2 All electrical machinery must be provided with controlling apparatus and protective devices.

8.2.1 What is the function of the controlling apparatus and protective devices? (1)

8.2.2 What are the requirements for controlling apparatus and protective devices in the neutral conductor? (1)

8.2.3 What are the requirements for marking or labelling of controlling apparatus and protective devices? (1)

8.3 You have to install new machinery and a switchboard in the factory.

What space must you provide at the front and back of the switchboard? (1)

8.4 You have to perform work in wet conditions in a confined space in a metal vessel and need to use a portable electric light.

What are the power requirements for a lamp used under such conditions? (1)

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8.5 Your employer has purchased a vacant stand next door to your factory with a proper functioning electric fence system on the boundaries which has an electric fence system certificate.

Must you obtain a new electric fence system certificate due to the change of ownership? (1)

8.6 The Explosives Regulations, 2002, requires that any person who desires to operate a workplace for the storage and use of explosives shall apply for a licence in writing to the chief inspector.

Name TWO items which must be attached to such application. (2)
[10]

QUESTION 9

9.1 Define the following terms as given in the Construction Regulations, 2014:

9.1.1 Scaffold

9.1.2 Suspended platform

(2 × 1) (2)

9.2 Name TWO things a contractor must ensure compliance with before allowing visitors to the construction site. (2)

9.3 You have appointed a contractor to erect extensive scaffolding at the factory where you want to install new equipment.

9.3.1 What must the contractor do when he wants to carry out the scaffolding work operations? (1)

9.3.2 To what standard must access scaffolding comply? (1)

9.4 As a contractor you are using a suspended platform system.

Name TWO things you must submit to the provincial director before the system may be used. (2)

9.5 You are using a properly constructed material hoist on a building site to raise and lower equipment and material.

9.5.1 What must you do when you convey barrows or material on the platform of the material hoist? (1)

9.5.2 What may not be raised or lowered on a material hoist? (1)
[10]

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QUESTION 10

10.1 Define the term *decontamination* as given in the Hazardous Biological Agens Regulations, 2001. (1)

10.2 The operations at your factory is of such a nature that employees are exposed to micro-organisms classified as a hazardous biological agent. Those employees are provided with the prescribed personal protective clothing and equipment and work in a controlled area.

Name TWO procedures for handling and cleaning of contaminated personal protective clothing. (2)

10.3 You have put up a notice prohibiting employees to leave a hazardous biological agent controlled area with the protective or contaminated clothing and equipment.

Name the TWO other things you must also prohibit. (2)

10.4 Define the term *assessment* as given in the Noise-induced Hearing Loss Regulations, 2003. (1)

10.5 You have to make an assessment to determine if any employee may be exposed to noise above the noise-rating limit.

10.5.1 Name TWO factors you have to take into account when making the assessment. (2)

10.5.2 Give TWO reasons why an assessment must be reviewed after it has been made. (2)

[10]

TOTAL: 100

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