higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NON-NATIONAL CERTIFICATE

SPECIALISED ELECTRICAL INSTALLATION CODES

(Second paper)

(8080644)

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09:00–12:00

This question paper consists of 7 pages.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NON-NATIONAL CERTIFICATE
SPECIALISED ELECTRICAL INSTALLATION CODES
(Second paper)
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. Start each section on a new page.
5. Use only a black or a blue pen.
6. Write neatly and legibly.

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QUESTION 1: OCCUPATIONAL HEALTH AND SAFETY ACT, ACT 85 OF 1993, ELECTRICAL MACHINERY REGULATIONS

1.1 What does "*dead*" mean according to this ACT? (2)

1.2 Subject to the provisions of sub-regulation (5), what is the requirement for every user or lessor of an electric fence system? (3)

1.3 If at any time prior to the issuing of an electric fence system certificate in terms of regulation 13(1), any fault or defect is detected in any part of the system, what is the responsibility of the registered person in that regard? (4)

1.4 What is the requirement for any person who undertakes to install, alter or extend an electric fence system? (1)

1.5 Indicate whether the following statement is TRUE of FALSE by writing only 'True' or 'False' next to the question number (1.5) in the ANSWER BOOK.

No person shall amend an electric fence system certificate issued by a registered person. (1)

[11]

QUESTION 2: OCCUPATIONAL HEALTH AND SAFETY ACT, ACT 85 OF 1993, ELECTRICAL INSTALLATION REGULATIONS

2.1 What is a *certificate of compliance*? (6)

2.2 What is the requirement with regard to any person who undertakes to do electrical installation work? (1)

2.3 If a registered person at any time, prior to the issuing of a certificate of compliance detects a fault or defect in any part of an electrical installation and if such fault or defect, in the opinion of the registered person, constitutes an immediate danger to persons in a case where electricity is already supplied, what action shall he/she take? (3)

2.4 What is the requirement where the connection of any completed or partially completed electrical installation needs to be connected to the electricity supply? (3)

[13]

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QUESTION 3: SANS 10142-1: 2020, THE WIRING OF PREMISES

3.1 Who may issue a certificate of compliance and a test report for an electrical installation at a petrol station? (1)

3.2 Who may issue a certificate of compliance and test report for an electrical installation for a sugar milling company? (1)

3.3 Who may install a three-phase electrical installation? (3)

3.4 What is the requirement according to this code/standard with regard to an electrical installation which requires a new supply, increase or modification of the electricity supply capacity? (3)

3.5 Who is legally required to register as an electrical contractor? (2)

[10]

QUESTION 4: SANS 10089-2: 2017, ELECTRICAL AND OTHER INSTALLATIONS IN THE DISTRIBUTION AND MARKETING SECTOR

THE PETROLEUM INDUSTRY

Instrumentation systems:

4.1 What shall instrumentation systems comply with according to this standard? (2)

4.2 Which uncertified or incorrectly certified portable equipment shall not be taken into hazardous locations? Give examples. (4)

Sidings:

4.3 What are the requirements with regard to rail joints at the siding excluding insulated rail joints (block joints)? (3)

4.4 State the requirements/factors/precautions when repairing bulk fuel delivery vehicles that carry Class I, Class II or Class III products. (5)

[14]

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QUESTION 5: SANS 10086-2: 2013, THE INSTALLATION, INSPECTION AND MAINTENANCE OF EQUIPMENT USED IN EXPLOSIVE ATMOSPHERES

PART 2: Electrical equipment installed underground in mines

5.1 What is the purpose of this part of SANS 10086? (3)

5.2 What is the further purpose of this part of SANS 10086 with regard to manufacturers of explosion-protected equipment? (2)

5.3 How should any work performed on electrical equipment installed underground in mines be carried out? (2)

5.4 Degrees of ingress protection of enclosures:

Describe what is meant by "*degrees of ingress protection of enclosures*" according to this standard. (7)

[14]

QUESTION 6: SANS 60079-14: 2014, ELECTRICAL INSTALLATIONS DESIGN, SELECTION AND ERECTION

Charging of secondary cells and batteries:

6.1 What is the requirement with regard to the charging of secondary cells and batteries? (3)

Protection of flameproof joints:

6.2 How shall flameproof joints be protected against corrosion and the use of gaskets on such joints? (2)

6.3 Indicate whether the following statements are TRUE of FALSE by writing only 'True' or 'False' next to the question number (6.3.1–6.3.2) in the ANSWER BOOK.

6.3.1 Painting of a flameproof enclosure (by the user) after complete assembly is permitted.

6.3.2 The application of grease to the flameproof joint faces will reduce, but not eliminate, the quantity of paint penetrating the gap.

(2 × 1) (2)

6.4 What are the requirements where the manufacturer's documentation does not address joint protection including use of grease? (4)

6.5 What care should be taken in the selection and application of greases? (2)

[13]

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QUESTION 7: SANS 60079-17: 2014, ELECTRICAL INSTALLATION INSPECTIONS AND MAINTENANCE

Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (7.1–7.10) in the ANSWER BOOK.

7.1 Detailed inspection is inspection which encompasses those aspects covered by a visual inspection and, in addition, identifies those defects, such as loose bolts, which will be apparent only by the use of access equipment.

7.2 Hand-held and portable equipment shall be submitted to a close inspection at least every 12 months.

7.3 Enclosures which are frequently opened (such as battery housings) shall be given a detailed inspection at least every 6 months.

7.4 Visual and close inspections can be performed with the equipment energised.

7.5 Detailed inspections will generally not require the equipment to be isolated.

7.6 The interval between periodic inspections shall not exceed three years without seeking expert advice.

7.7 An initial inspection is an inspection of all electrical equipment, systems and installations after they have been brought into service.

7.8 The use of continuous supervision by skilled personnel removes the requirement for initial and sample inspections.

7.9 A hazardous area is an area in which an explosive atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment.

7.10 Sample inspection is inspection of a representative proportion of the electrical equipment, systems and installations.

(10 × 1) **[10]**

QUESTION 8: SANS 60079-19: 2015, EQUIPMENT REPAIR, OVERHAUL AND RECLAMATION

8.1 According to the scope of this standard, to which three Ex protection types does this standard not apply? (1)

8.2 What is the requirement with regard to replacement bolts that are used on equipment? (3)

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8.3 In the supply-side of associated apparatus of intrinsically safe circuits, where replacement of an identical fuse is not possible; fuses may be replaced with an alternative. What characteristics shall this alternative fuse have? (5)

8.4 Fill in the missing words regarding the symbol/mark below when used on repaired equipment. Write only the answer next to the letter (a–f) in the ANSWER BOOK.



This mark is to be used (a) … when the repair or (b) … is in accordance with this (c) … and the repairer has sufficient (d) … of full compliance with the (e) …, documentation and/or manufacturer's (f) … . (6)

[15]

TOTAL: 100

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