



8202-531 APRIL 2018

8202 Level 3 Advanced Technical Diploma in Electrical Installation (450)

Level 3 Electrical Installation – Theory exam

If provided, stick your candidate barcode label here.

Friday 20 April 2018
09:30 – 12:00

Candidate name (first, last)

First [grid of boxes]

Last [grid of boxes]

Candidate enrolment number

[grid of boxes]

Date of birth (DDMMYYYY)

[grid of boxes]

Gender (M/F)

[grid of boxes]

Assessment date (DDMMYYYY)

[grid of boxes]

Centre number

[grid of boxes]

Candidate signature and declaration*

[signature box]

If any additional answer sheets are used, enter the additional number of pages in this box. [grid of boxes]

- Please ensure that you staple additional answer sheets to the back of this answer booklet...
• All candidates need to use a black/blue pen. Do not use a pencil or gel pen.
• If provided with source documents, these documents will not be returned to City & Guilds...

*I declare that I had no prior knowledge of the questions in this assessment and that I will not divulge to any person any information about the questions.

You should have the following for this examination

- a pen with blue or black ink
• non-programmable scientific calculator

Permitted reference material:

BS 7671
IET On-site Guide

General instructions

This question paper is the property of City and Guilds of London and should be returned after the examination.

- The maximum marks for each question is shown in brackets.
• Answer all questions.

Please note that this theory test has been amended to ensure it is fit for purpose for use as a sample assessment.

- 4 When a voltage of 110 V is applied to a circuit, a current of 20 A flows at a power factor of 0.95.
Calculate the kVA. (2 marks)

- 5 An inductor has an inductive reactance of $4\text{ k}\Omega$ when it is connected across a 24 V, 50 kHz AC supply.
Calculate the supply current. (2 marks)

- 6 Explain how the wound rotor on an AC induction motor achieves a high starting torque. (3 marks)

- 7 State the **three** principles of space heating. (3 marks)

8 Describe the operating principle of a thermostat in an immersion heater. (3 marks)

9 State the earthing arrangement shown in Figure 1 and identify the parts labelled X and Y. (3 marks)

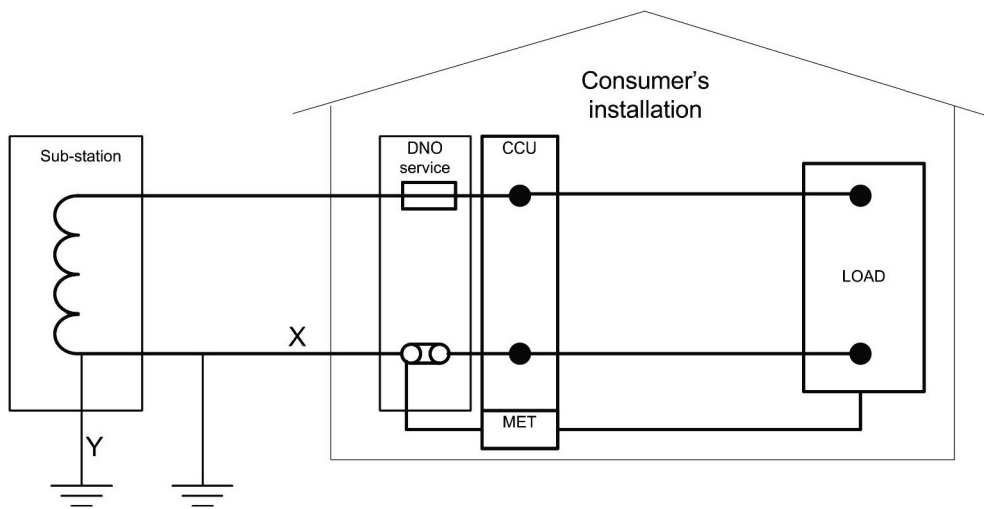


Figure 1

10 Determine a suitable type and nominal rating of protective device for a single-phase circuit supplying a total loading of 4000 W discharge lighting. (4 marks)

11 State the **two** methods used to determine the suitability of a protective conductor CSA for thermal constraints during earth fault conditions as given in BS 7671. (2 marks)

12 State **three** non-statutory publications associated with the Initial Verification of electrical installations.

(3 marks)

13 Explain the purpose of a polarity test on a lighting circuit having LED luminaires.

(3 marks)

14 Describe three behaviours that would help maintain good relationships with the client during the commissioning process.

(3 marks)

- 15 State **three** health and safety considerations that would contribute to a risk assessment before carrying out fault diagnosis work. (3 marks)

- 16 State **three** common examples of activities that can result in a short circuit. (3 marks)

- 17 Explain the fundamental rule of basic protection. (3 marks)

18 Define an exposed-conductive-part.

(3 marks)

19 State **three** methods that can be used when determining the characteristics of an incoming supply.

(3 marks)

20 State **three** situations that require the completion of an Electrical Installation Certificate.

(3 marks)
