8202-531 Level 3 Electrical Installations – Theory Exam

March 2025

Examiner Report

Contents

Introduction

This document has been prepared by the Chief Examiner; it is designed to be used as a feedback tool for centres to use in order to enhance teaching and preparation for assessment. It is advised that this document be referred to when preparing to teach and then again when candidates are preparing to sit examinations for City & Guilds Technical qualifications.

This report provides general commentary on candidate performance and highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat the **March 2025** examination series. It will explain aspects which caused difficulty and potentially why the difficulties arose, whether it was caused by a lack of knowledge, poor examination technique or responses that failed to demonstrate the required depth of understanding.

The document provides commentary on the following assessment:
8202-531 Level 3 Electrical Installation – Theory Exam.

Theory Exam – March 2025

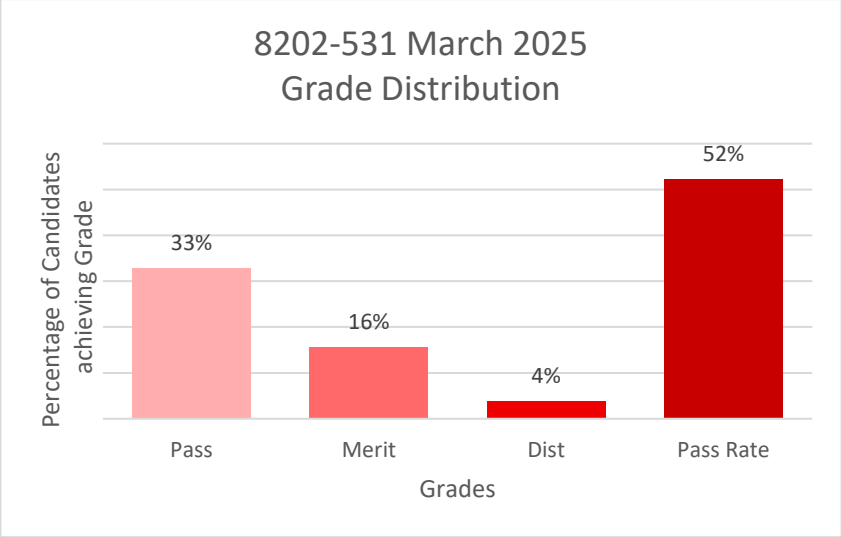
Grade Boundaries and Distribution

Assessment: **8202-531**
Series: **March 2025**

This series was paper based only. Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	75
Pass mark	28
Merit mark	38
Distinction mark	49

The graph below shows the distribution of grades and the pass rate for this assessment:



Chief Examiner Commentary

General Comments on Candidate Performance to be published to centres and candidates

Assessment component: 8202-531

Series: March 2025

Like previous assessments, this series explored a good range of knowledge and understanding from across the specification.

Areas of strength shown by the cohort included the correct identification of colours for line conductors in a three-phase system, calculating reactive power and power factor, definitions from BS 7671, requirements for caravan park socket-outlets, and the uses of excess electricity when privately generated.

Areas where candidates could have maximised marks by using all the information within a question included the following items:

- Providing detail on what is used as an earth return path **external** to an electrical installation as many candidates stated 'earth electrode for a TT arrangement, or 'cpc' for a TN-C-S arrangement. An earth electrode and cpc are both part of an electrical installation (unless source electrode was given).
- Providing the relevant detail in relation to a 20 A RCBO protecting a socket-outlet circuit, when explaining overloads. Few made mention of the rating or type of circuit.
- Focussing on the term 'accessory' and 'dwelling' when listing what can be functionally tested in a typical dwelling. Many responses given were appliances rather than accessories, and many examples would not be found in a dwelling.

Many candidates did not complete responses, therefore falling short of the marks on offer. This was especially evident in question such as:

- Explaining the operating principles of an inverter, with many explaining it converts DC to AC, but few completing the answer with regards to frequency matching or voltage alignment. Many gave explanations relating to the solar PV system instead.
- Calculating the line current in a three-phase delta system with many calculating the phase current and not converting this to the line current value.
- Defining the meaning of external influence codes where candidates did not provide the full meaning. For example, when asked to define the code AD5, many simply stated 'jets', instead of the full answer which was water (AD) jets (5).

Overall, most of the cohort demonstrated weakness in explaining operating principles for items, such as a solenoid within a contactor or the use of the lumen method for lighting design.

One item required candidates to calculate the maximum demand for a cooker final circuit, including the application of diversity. Many candidates were able to attract some marks for calculating the initial design current with many being able to identify the guidance within the On-Site Guide. Some however went on to calculate 30% of the full load without deducting 10 A or failed to add the 10 A back on after finding 30%. Marks were awarded for aspects of the application even if the end result was not correct. A surprising number of candidates added 5 A to their calculated loading despite the question clearly stating there was no socket-outlet on the control unit. This is another example of not using the information in the question.

A question asked candidates to explain what had been verified on successful completion of a continuity of ring-final circuit test. Most responses were too simplistic with many simply repeating the question. Some were able to identify that polarity was confirmed but the majority of

responses were very vague and simply stated, for an example, ‘to check the circuit is working properly’.

One question was themed on documents that are referenced during fault diagnosis. From the vast range of suitable examples available as answers, many candidates provided duplicate documents such as EIC and EICR which are simply seen as previous test documents. ‘Manufacturer’s instructions’ was by far the most popular correct response.

One of the questions required candidates to identify three practices that would alert others if someone was lone working and became unconscious. Many candidates who responded to this item seem to have misinterpreted the situation and did not link the question to the scenario of an operative working alone.
Many responses gave brief outlines of how the potential casualty would be dealt with, such as ringing emergency services, rather than measures to ensure the operative was safe or to raise concerns. Few responses linked the question to the lone working in the scenario. Another common response where candidates did relate to the lone working scenario gave solutions that were not workable in practice, such as the operative raising the alarm or pressing a panic button, solutions that an unconscious person could not do.
Some other responses linked to tasks that are hazardous, such as live testing and that these should be avoided to minimise any risk even though the scenario stated the person was undertaking fault diagnosis.

This ERQ was based on a scenario where a distribution circuit was required to span from one building to another. The scenario contained an elevation drawing giving heights of cable runs, lengths of span, installation dimensions, and electrical supply and loading data.

The question asked candidates to provide a design solution focusing on three aspects, these being

- the suitable cable for this
- the method of spanning the cable between buildings
- the design of a suitable cross-sectional area for current capacity and voltage drop.

Most of the candidates focussed their design on one aspect only, that being the design calculations. Very few could express any technical understanding of how the cable would be installed or a suitable cable type.

Even through candidates could attract marks through their design calculations, many used data for single core cables rather than the correct SWA cable.

Some candidates who did respond to the method of spanning between buildings seemed to consider metallic tray as a suitable way to support the cable across a 35 m span. Very few could identify a catenary wire as a suitable method of support.

Many candidates who undertook the cable calculations were not able to demonstrate any understanding of the figures being calculated with little justification or analysis.

Centres should be reminded that extended response questions are intended for candidates to display a level of understanding and it is important candidates read the question to understand what is required of them, especially when applying and/or justifying their data.

Candidates and centres should also be reminded that there are clear instructions on what publications are permitted for the assessment contained in the permitted materials document which can be downloaded from the 8202 qualification webpage here.