8202-30 – Level 3 Advanced Technical Diploma in Electrical Installation (450)

2018

Qualification Report

Contents

Introduction 3
Qualification Grade Distribution 4
Theory Exam 5
Grade Boundaries and distribution 5
Chief Examiner Commentary 7
Series 1 (April) 7
Series 2 (June) 9
Synoptic Assignment 10
Grade Boundaries and distribution 10
Principal Moderator Commentary 11

Introduction

This document has been prepared by the Chief Examiner and Principal Moderator; it is designed to be used as a feedback tool for centres in order to enhance teaching and preparation for assessment. It is advised that this document is referred to when planning delivery and when preparing candidates for City & Guilds Technical assessments.

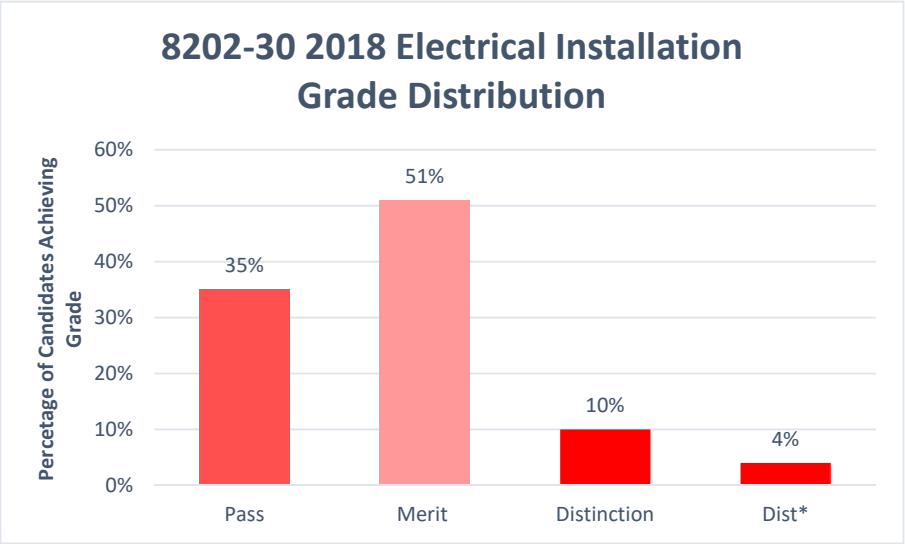
This report provides general commentary on candidate performance in both the synoptic assignment and theory exam. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the 2018 academic year. It will explain aspects which caused difficulty and potentially why the difficulties arose.

The document provides commentary on the following assessment;

- 8202-531 Level 3 Electrical Installation – Theory exam
    - April 2018 (Spring)
    - June 2018 (Summer)
- 8202-032 Level 3 Electrical Installation – Synoptic Assignment

Qualification Grade Distribution

The grade distribution for this qualification is shown below;



Please note City & Guilds will only report qualification grades for candidates who have achieved all of the required assessment components, including Employer Involvement, optional units and any other centre assessed components as indicated within the Qualification Handbook.

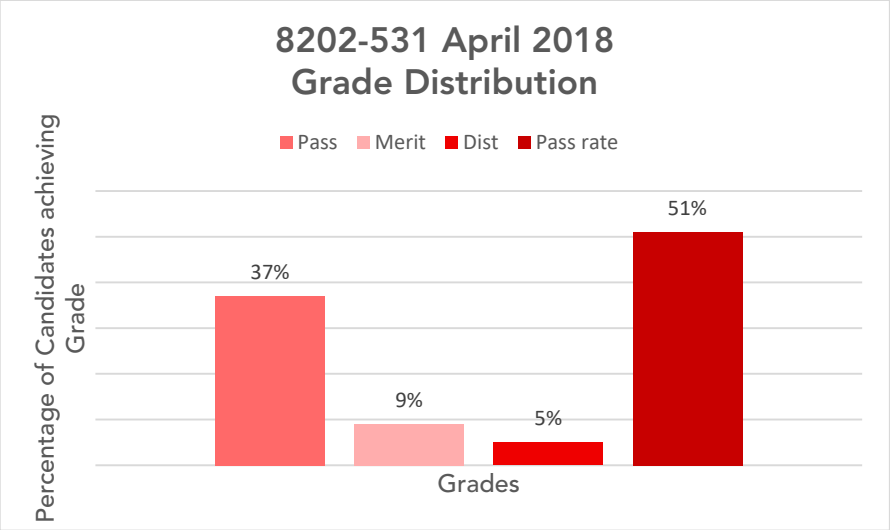
Theory Exam
Grade Boundaries and distribution

Assessment: 8202-30/531
Series: April 2018

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel;

Total marks available	75
Pass mark	31
Merit mark	43
Distinction mark	56

The graph below shows the distribution of grades and pass rates for this assessment;

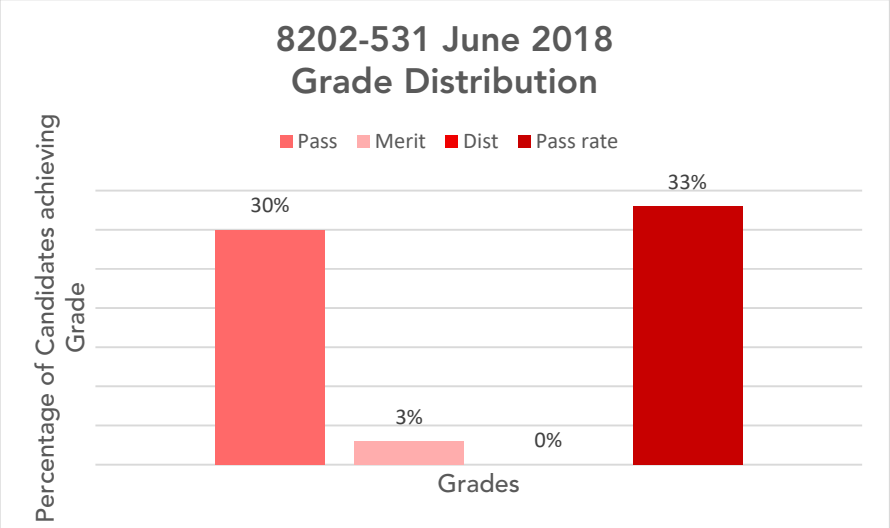


Assessment: 8202-30/531
Series: June 2018

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel;

Total marks available	75
Pass mark	27
Merit mark	39
Distinction mark	51

The graph below shows the distribution of grades and pass rates for this assessment;



Chief Examiner Commentary

Assessment component: 8202-30/531

Series 1 (April)

The examination paper covered a good range of learning outcomes over the qualification. Whilst question 21 did not contain enough information for circuit design calculations to be carried out, there was enough information for candidates to form a design principle in compliance with BS 7671. The lack of data used for calculations meant that candidates who were prepared to follow a given procedure were only able to list calculations they would have undertaken instead of describing factors affecting the design process using the information which was contained in the question.

Generally, few candidates were able to demonstrate a good level of understanding across the range of learning outcomes. Many were able to recall knowledge of reference particular parts of BS 7671.

Understanding of scientific principles was very poor with many unable to apply simple Ohm's law calculations using values of resistance given with prefixes/multipliers. Recalling of formula used in AC theory was good but understanding how to use the values obtained to obtain overall circuit values was not so strong.

An understanding or ability to describe principles of operation for particular electrical equipment was very disappointing with many candidates not even recognising what the equipment was despite the equipment being very common in many installations.

An understanding of BS 7671 was slightly more evident, and it was apparent that many were able to use the publication effectively when answering questions. This included a method of shock protection, earthing arrangements and inspection and testing.

An understanding of organisational procedures and individual behaviours was adequate across many candidates but providing a description, as required by a question, instead of simply stating could have gained more marks.

Clear areas of strength were Health and Safety related questions.

The main question used for extended response did not contain enough information for candidates to carry out design related calculations but a suitable design complying with BS 7671 could still have been described using given information. These included

- Installation methods
- Wiring systems employed
- Rating factors applicable
- External influences
- Requirements of Part 7 of BS 7671
- Earthing arrangements

Some candidates used this information accordingly but the majority who did provide a response to this question, simply listed a range of formula used for circuit design calculations.

Marking for Extended Response Question

When awarding marks for Q21, the approach we took was as follows;

- The chief examiner marked candidates' responses to this question with the consideration that this piece of information was missing and gave credit to candidates who attempted to answer the question without this figure.
- We then compared the score achieved against this question to the rest of the examination paper.
    - If the candidates scored a lower percentage against this question compared to the paper, we inferred that they had been negatively disadvantaged by the error and awarded them marks for the ERQ that was reflective of the marks scored across the rest of the paper.
    - If the candidate scored a higher percentage on the ERQ, we honoured that mark and allowed it to stand.

This approach allowed us to avoid disadvantaging those who couldn't attempt the question and those who worked around the omission of information. We worked through this approach with the regulator and they were content that this approach would limit the scale that this question could disadvantage a candidate.

Series 2 (June)

The examination paper covered a good range of learning outcomes over the qualification. All questions were considered to be technically correct, suitable for the level with no errors.

Generally, few candidates were able to demonstrate a strong level of understanding across the range of learning outcomes. Many were able to recall knowledge or reference particular parts of BS 7671.

Understanding of scientific principles was generally reasonable but few were able to demonstrate a strong understanding, especially in questions relating to transformers or motor control.

Questions relating to information, documentation and planning were well answered.

An understanding of BS 7671 was evident, and it was apparent that many were able to use the publication effectively when answering questions. This included, in particular, researching rating factors or the identification of special installations or locations.

Particularly strong areas of knowledge were linked to inspection and testing, especially insulation resistance testing and safety procedures needing consideration during inspection and testing. One area of exception to this was functional testing of a particular item of equipment, such as Passive Infra-red sensors.

Areas of weakness included a full understanding of factors affecting cable current-capacity or limitations of particular protective devices.

The main question used for extended response required candidates to evaluate circuit information to form a suitable design. Many candidates demonstrated a basic recall of knowledge and some were able to show a full design procedure. Very few however were able to carry out simple calculations for design current for three-phase circuits.

Whilst many may have made errors in the calculation of design current, marking was based on the recall of procedure and understanding of results, including comparison with published data.

Where candidates demonstrated this understanding and recall, despite some errors in calculation, higher band 2 marks were awarded. Very few candidates were able to score band 3 marks.

Synoptic Assignment

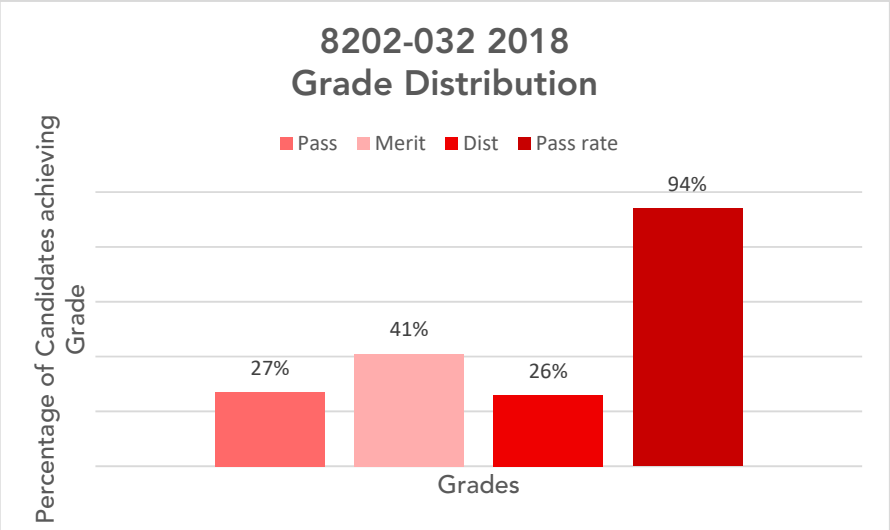
Grade Boundaries and distribution

Assessment: 8202-032
Series: June 2018

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel;

Total marks available	75
Pass mark	25
Merit mark	37
Distinction mark	50

The graph below shows the distribution of grades and pass rates for this assessment;



Principal Moderator Commentary

The synoptic assignment brings together knowledge and understanding as well as skills learnt over Level 2 and Level 3 of this qualification. Candidates needed to enhance their practical skills gained at Level 2 and apply a great deal of understanding gained at Level 3 in three key areas:

- Installation design
- Inspection and Testing
- Fault finding and diagnosis

The tasks within this assignment were designed to assess the knowledge in these areas which also, individually, assesses learning from across the qualification.

Candidate's performances against each AO were as follows;

AO1- Recall

Most candidates scored reasonably well, showing a good ability to state information within Regulations and employ suitable techniques when using test equipment. A reasonable use of technical language was also evident. The ability to find detail within permitted publications was evident but the application of the information (AO2) less evident.

AO2- Understanding

Candidates who scored well overall demonstrated a good level of understanding when working on design procedures. They also showed a high level of understanding when evaluating risk assessments and understanding test results.

Candidates who achieved mid-range scores seemed to struggle with understanding of circuit principles and this seemed evident with fault descriptions and interpretation of test results.

Candidates who scored low seemed to lack understanding of circuit characteristics and could not seem to evaluate results to conclude faults, or use and evaluate information effectively. Low scoring candidates also chose the easiest method of producing a critical path rather than one that considers a more efficient process on site.

AO3- Technical skills

Most candidates scored mid to high range in this objective, demonstrating a good to high level of practical ability in using tools and equipment effectively. Lower scoring candidates seemed to constantly seek reassurance from assessors that techniques used were correct.

AO4- Bringing it all together

It was clear that high scoring candidates were able to make quick and reliable judgements of test data when carrying out initial verification or undertaking fault diagnosis. They were also clearly confident in design techniques and procedures.

Lower scoring candidates seemed to find it difficult to know where to find information in published data based on the evidence they have found whilst testing. They appeared hesitant in knowing where to find published values for comparison to measured values and equally when designing values.

AO5- Attending to detail

Most candidates seemed to score mid to high range in the objective. From sampled moderated material it was evident that even the lower scoring candidate took pride in their work. Every effort was made to scrutinise detail, especially for the critical path analysis and circuit design grid.