8202 – L3 Advanced Technical Diploma in Electrical Installations

2016/17

Qualification Report

Contents

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.
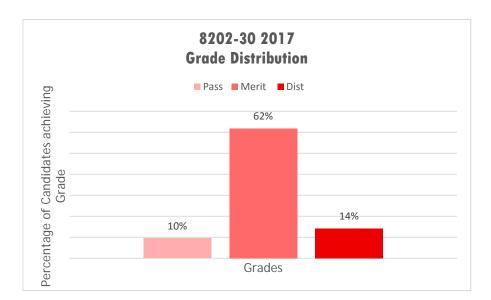
This report provides general commentary on candidate performance in both the synoptic assignment and theory exam. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the 2017 academic year. It will explain aspects which caused difficulty and potentially why the difficulties arose.

The document provides commentary on the following assessments;

- 8202-031/531 Level 3 Electrical Installations - Theory exam
    - April 2017
    - June 2017
- 8202-032 Level 3 Electrical Installations – Synoptic Assignment

Qualification Grade Distribution

The grade distribution for this qualification during the 2016/2017 academic year is shown below;

8202-30 2017
Grade Distribution

■ Pass ■ Merit ■ Dist

Percentage of Candidates achieving Grade

62%

14%

10%

Grades

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.
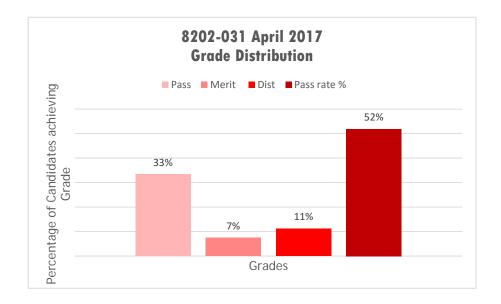
Theory Exam

Grade Boundaries

Assessment: 8202-031
Series: April 2017

This series was only completed on the online platform and there were no registrations for paper based version.
Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel;

Total marks available	75
Pass mark	28
Merit mark	40
Distinction mark	52

The graph below shows the distributions of grades and pass rate for this assessment;

8202-031 April 2017
Grade Distribution

■ Pass ■ Merit ■ Dist ■ Pass rate %

Percentage of Candidates achieving Grade

- 33% (Pass)
- 7% (Merit)
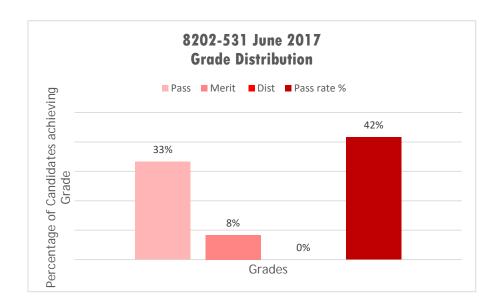- 11% (Dist)
- 52% (Pass rate %)

Grades

Assessment: 8202-531
Series: June 2017

This series was only completed on the paper based platform and there were no
registrations for the online version.
Below identifies the final grade boundaries for this assessment, as agreed by the
awarding panel;

Total marks available	75
Pass mark	30
Merit mark	41
Distinction mark	52

**8202-531 June 2017
Grade Distribution**

Chief Examiner Commentary

8202-30 – 031/531 Level 3 Advanced Technical Diploma in Electrical Installations – Theory Exam

Series 1 - April 2017

Generally candidates demonstrated a fair understanding of science and principles (302) and a reasonable degree of knowledge in other areas. What seemed to be an area of weakness is a good level of understanding of BS 7671.

Two items that related to alternating current circuits indicated that candidates appeared confused as both questions related to the same circuit but required different analysis and responses from the candidates. On reflection, these two items could have been arranged differently on the platform to minimise this apparent confusion. Most candidates scored very well on the first item but did not score high marks on the next item, yet both required similar understanding. As a result of this potential issue with question presentation, grade boundaries were adjusted.

Many candidates need to understand the difference between the inverse square law and inverse cosine law when evaluating illumination questions.

Few candidates scored well when demonstrating an understanding of the types of circuit within the question. Whilst most candidates referenced one table within BS 7671, it was the understanding of the type of circuit that led to incorrect responses. Having this understanding will reinforce the understanding needed in other areas such as circuit principles, inspection and testing and installation evaluation.

Not all disconnection times are indicated in Table 41.1 of BS 7671 and understanding the different circuit types will help, as well as the difference between nominal voltage and nominal voltage to earth.

Candidates must use the information contained in the stem of the question and keep responses relevant to it when stating what would be inspected using particular human senses. Many gave very vague responses instead of specific responses.

Very few candidates showed a good knowledge of the forms used for Initial Verification despite sample forms being available in appendix 6 of BS 7671.

Candidates are urged to use and know the content of permitted reference materials.

Very few candidates scored well and did not demonstrate a good understanding of information that would assist in fault diagnosis work. Many candidates listed items contained in the same document and therefore duplicated answers. An example of this would be where candidates listed an Electrical Installation Certificate and Schedule of Test Results when they are part of the same document. Very few candidates moved away from certification and therefore didn't mention other very relevant items such as manuals, diagrams or drawings.

None of the candidates scored full marks on one item relating to swimming pool locations. Many seemed to focus on the first regulation they came to in BS 7671 and not look further at other relevant requirements.

Candidates did not score high marks in the extended response question. Being able to evaluate the circuit and all the information provided with it is a key quality candidates should possess if they wish to demonstrate a good level of the subject overall as this question draws in knowledge from all units in the qualification.

Series 2 - June 2017

Generally, few candidates demonstrated a good understanding across the whole subject. Whilst many candidates showed an ability to recall knowledge, only a small number of candidates could apply understanding of concepts.

The majority of candidates were able to state scientific principles such as renewable energy sources, however only a few candidates could describe principles of induction or determine neutral current values for three-phase systems.

Many candidates were able to find values from BS 7671and apply voltage drop values but very few were able to describe component parts of different earth fault paths.

A good understanding of BS 7671 and Inspection and Testing was lacking by most but many could state values from the IET On-site Guide such as recommended floor areas for circuits.

Fault diagnosis and use of test instruments was a particularly area of weakness and candidates generally scored low marks on this topic.

In the extended response question, candidates scored very low in the section relating to supply characteristics external to the installation, with many candidates listing component parts within an installation, which seems to indicate that the question was not being read properly.

With the second part of the extended response question, many candidates seemed to follow a set procedure, such as determining Inductive Reactance and Impedance of loads where information needed to carry this out was not in the question. This gives an impression that candidates have been revising those particular calculations, which were part of the April series extended question, but the need for those calculations was not present in the June series.

Candidates also showed an ability to follow a procedure for determining circuit impedance but did not successfully evaluate the calculated data to published data in the permitted reference material.
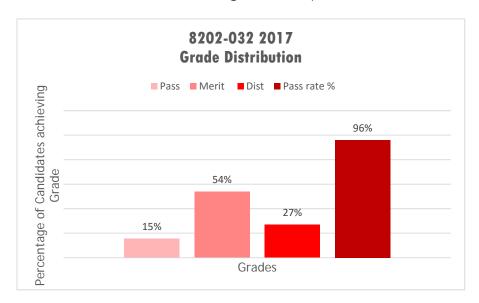
Synoptic Assignment

Grade Boundaries

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

Assessment: 8202-032
Series: 2017

Total marks availible	60
Pass mark	27
Merit mark	37
Distinction mark	47

The graph below shows the distributions of grades and pass rate 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.

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 or evaluate information effectively.

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.

AO6- Research

Whilst the majority of candidates scored high in this area, those who didn't were the same candidates who sought reassurance when testing or fault finding. Those who scored well also demonstrated a good understanding of BS 7671 as well as the IET On-site Guide.

AO8- Communication

Candidates who scored low in AO1 also scored low here. The correct use of written or oral technical terminology seemed to be the biggest problem and poor use of terminology in this technical subject leads to poor communication.

Candidates who scored high displayed a good use of technical terminology as well as good use of dealing with information which was communicated to them by drawings.