

# 2394-302 Level 3 Principles, Practices and Legislation for the Initial Verification of Electrical Installations.

Chief Examiner's report – **August 2014**



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# 1 Introduction

The purpose of this document is to provide centres with feedback on the performance of candidates in the **August 2014** examination for 2394-302 Principles, Practices and Legislation for the Initial Verification of Electrical Installations.

The Chief Examiner's Report has been reintroduced as a result of feedback from centres, to give them guidance in preparing candidates for the written examination.

## 2 Feedback on candidate performance

### General feedback

The following comments are intended to help students prepare for the examination by having a better understanding of what is expected of them. The feedback within this report would also be valuable to tutors in understanding candidates' difficulties in answering questions and the areas where more guidance is required.

The August 2014 question paper was found to be in accordance with the scheme requirements.

The number of scripts received for this series was 723.

Candidates appeared to have no issues with the format of the paper. They need to be aware that the space left for their answer is intended to be generous and, in almost all cases, is more than enough to record their answer.

Candidates should keep their responses within the allotted area and any additional sheets should be stapled to the back of the answer book. The number of additional attached sheets needs to be recorded in the box on the front cover of the examination paper/candidate response book.

This exam series was the first to be completed with the extended time period. The additional time did not appear to make any difference to the quality of answer given. There are still a significant number of candidates that do not read the questions carefully.

### Terminology

Candidates often identified test instruments using incorrect titles. The titles of Instruments must be in line with those given in GN3.

Terminology when referring to the names of inspection and testing documentation, particularly the Schedules, was also a problem area. The titles used must be in line with GN3 and BS 7671.

### Knowledge of BS 7671 and Guidance Note 3

One question required the candidates to state what was meant by  $I_{cn}$  and  $I_{cs}$  ratings on BS EN 60898 circuit breakers. Most candidates were unable to correctly answer this question.

Another question provided a scenario whereby the installation complied with the designers intentions but failed to meet the requirements of BS 7671. Most candidates failed to recognise that these were intended departures and therefore needed to be noted on the Electrical Installation Certificate in the appropriate place rather than deviations which needed to be corrected before issue of the Certificate. Some candidates appeared to forget that the question related to Initial Verification and provided answers as though they were completing an Electrical Installation Condition Report and therefore wrote about 'classifying the deviation as C1, C2 or C3'.

As sizeable number of candidates were unable to correctly state who was responsible for deciding the period between the Initial Verification and the first Periodic Inspection and Test. When answering questions such as this, candidates need to remember that there are three distinct areas of responsibility in the completion of an electrical installation, namely Design, Construction,

Inspection and testing and that each of these areas and the persons responsible for each, have their own roles and responsibilities.

The final question on the paper required the candidate to describe, with the aid of a diagram, the earth fault loop path for a TN-S system. Most answers included a correct drawing of the system, clearly showing the path, with many of the key components correctly identified. A small number of answers included incomplete diagrams which only showed the path within the consumer's installation. Others showed a TN-C-S system and a couple of drawings indicated a TT system. A significant number of candidates believed that the fault current flowed to earth at the supply transformer or only indicated current flow in the earth part of the system. It is of concern that candidates taking this examination do not have a basic understanding of current flow in a circuit.

## **Inspection**

Most candidates provided good answers when asked to identify five checks to be made during an inspection of a steel-wire armoured cable gland and terminations at the machine isolators. A small number of answers incorrectly referred to the cable runs and the fixing of isolators and the distribution board.

In the main the new layout of the answer grid in table format, seems to have alleviated the past issues with answering the part of the question relating to the senses used for each check.

## **Testing**

One question required a list of the steps needed to complete the safe isolation of a three-phase distribution board. This is a common procedure that is fundamental to safe working practices. Most candidates listed the required steps and as a result scored high marks. A small number of answers indicated a distinct lack of understanding of the process. It is important that this procedure is clearly understood by all personnel who undertake electrical installation work. Common errors related to not seeking permission before carrying out isolation and a failure to test between neutral and earth and some candidates only describing the isolation of a single-phase board.

Another question required the first three tests in the correct sequence and the test instruments used to carry out these test on a three-phase 400 V 16 A socket outlet. An alarming number of candidates provided an incorrect sequence. Terminology was a problem with a number of candidates when it came to the instrument names. Some were imprecise when referring to the tests simply stating 'continuity' or 'continuity of conductors' as the first test. Others gave 'continuity of earthing and bonding conductors' as the first test, thus not relating the question to the scenario given, possibly through not having read the question fully.

The second part of this question asked about the other tests that would be applicable to this circuit. A significant number of candidates incorrectly listed 'PFC' as an appropriate test for this circuit. Others failed to acknowledge that this circuit would require additional protection by means of an RCD and that this would need testing.

A description of an Insulation resistance test on the incoming terminals of a new three-phase distribution board prior to connection to the supply was required by one question. This was a very poorly answered question with many candidates answering the question by rote and not relating it to the scenario given. Common errors including not switching on the main switch or circuit breakers which is a cause for concern as this is a requirement of the practical assessment undertaken as part of this qualification. Many candidates wrote about disconnecting devices which could be damaged, but failed to disconnect or isolate loads. This has been a common error with this type of question which appears to indicate that candidates do not know the reasons why these two different categories of electrical equipment are disconnected namely that one could be damaged and the other will cause erroneous results.

An earlier part of the question asked about the action to be taken as regards exposed-conductive-parts prior to carrying out the insulation resistance. Many candidates demonstrated a lack of knowledge as to the meaning of the term exposed-conductive-part and appeared to muddle this up with live-parts and gave answers such as 'making sure that they were enclosed or behind barriers' rather than making sure that they were connected to Earth.

### 3 National pass rate

The national pass rate for the 2394-302 **August 2014** examination is as follows:

<b>Exam series</b>	<b>Pass rate (%)</b>	<b>Fail rate (%)</b>
<b>August</b>	<b>54</b>	<b>46</b>

#### **Past examination series**

<b>Exam series</b>	<b>Pass rate (%)</b>	<b>Fail rate (%)</b>
<b>June 2014</b>	<b>62</b>	<b>38</b>
<b>April 2014</b>	<b>39</b>	<b>61</b>
<b>February 2014</b>	<b>47</b>	<b>53</b>
<b>December 2014</b>	<b>52</b>	<b>48</b>

#### **Forthcoming Exam Dates are:**

Tues	21 October 2014	18:30 – 20:30
Tues	2 December 2014	18:30 – 20:30
Tues	10 February 2015	18:30 – 20:30
Tues	21 April 2015	18:30 – 20:30
Tues	09 June 2015	18:30 – 20:30

Please note from August 2014 series onwards we have swapped exam dates so that 2394 is on Tuesday and 2395 on Wednesday to suit the order of course delivery. From August, the exam duration will increase to two hours. There will be no change to the exam format and number of questions.

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