

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



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August 2015 Version 1.0

**Chief Examiner's report – August 2015**



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# Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Feedback on candidate performance</b>	<b>3</b>
	General feedback	3
	Knowledge of BS 7671 and Guidance Note 3	3
	Inspection	4
	Testing	4
<b>3</b>	<b>National pass rate</b>	<b>6</b>
	Past examination series	6
	Forthcoming Exam Dates are:	6

# **1 Introduction**

The purpose of this document is to provide centres with feedback on the performance of candidates in the **August 2015** 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 April 2015 question paper was found to be in accordance with the scheme requirements.

The number of scripts received for this series was **619**.

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. These additional sheets should be plain lined paper and not a second answer book. The blank pages at the back of the answer book should not be used for candidate responses. These pages are not allocated areas for recording answers. Where it becomes necessary for centres to copy/print additional answer books these should be produced double sided to facilitate correct scanning into the marking software.

Candidates must read the questions carefully and relate answers their answers to the question and the scenario when relevant. Many candidates give generic answers and thus lose marks. One question called for candidates to list, in the correct sequence, the first three instrument tests to be carried out on a circuit supplying a water heater. Candidates included such tests as 'continuity of bonding conductors' and 'continuity of ring final circuit conductors' which are clearly not appropriate to the circuit described. Other candidates omitted to mention 'polarity'. Some candidates provide answers such as 'continuity'. This could mean the continuity of bonding conductors, the continuity of the cpc or the continuity of ring final circuit conductors. Examiners will therefore not award the mark.

### **Terminology**

The use of "live" rather than "line" continues to cost some candidates marks. Candidates interchange the two terms when describing test procedures which often results in a loss of marks due to the testing procedure being unclear.

Other areas where terminology proved to be an issue was when listing test instruments, certification documentation, statutory and non-statutory documents and the name of tests. The correct names for test instruments are listed in Guidance Note 3. ' $R_1 + R_2$ ' is not the name of a test but rather the result of a test.

### **Knowledge of BS 7671 and Guidance Note 3**

Many candidates were unable to fully state or were only able to partially state the purpose of an initial verification or to correctly state why BS 7671 requires initial verification tests to be carried out in a specific sequence.

Whilst most candidates were able to identify the minimum IP ratings for barriers and enclosures, many were not able to correctly identify IP ratings of equipment installed in various zones of the bathroom.

One question asked about the characteristics of the supply. Some candidates included maximum demand as an answer when this relates to the installation not the DNO's supply.

A large number of candidates were unable to state the operational characteristics of an RCD installed to provide additional protection. Many gave a list of test currents and disconnection times rather than the information contained in regulation 415.1.1.

Another question asked candidates to state the conditions that must be met to permit the use of a Minor Electrical Installation Works Certificate. This question was poorly answered, with many candidates simply stating 'alteration and addition' without clarifying that this only relates to an existing circuit.

Candidate responses as to why particular tests are carried out and which results are recorded were another area of weakness. When recording the results of a ring final circuit test candidates must remember that ' $R_1$ ' and ' $r_1$ ' have distinct and different meanings.

## **Inspection**

One question asked which senses would be used to identify a loose connection during initial verification. As this is initial verification and inspection precedes testing, the installation would not be 'live' and therefore senses such as hearing and smell would not be appropriate.

## **Testing**

The following tests were covered on the question paper: The safe isolation procedure for a single-phase installation, Continuity of protective conductors and insulation resistance.

Generally candidate responses to describing a safe isolation procedure for a single-phase consumer unit were well answered.

One question asked for a description of how confirmation of continuity of cpc test and determination of  $R_1+R_2$  on a lighting circuit would be carried out. It should be noted that this question had two parts to it, confirm continuity and determine  $R_1+R_2$ . Confirming continuity requires testing to be carried out at every point and determining  $R_1+R_2$  precludes the use of the 'long lead' method as the sole means of performing the test. Common errors apart from using the wrong method were not closing switches and only testing at the furthest point.

The common error made by candidates when describing the insulation resistance test was not relating the test to the scenario. Candidates must remember that questions 4 to 6 all relate to the scenario and thus must be tailored to this if full marks are to be scored.

The question stated that the test was to be carried out on the 'main tails before connection to the supply'. Many candidates failed to recognise that the main switch and circuit breakers needed to be in the 'on' position, which was surprising as this is exactly the scenario of the practical assessment for insulation resistance testing. Others stated that the test would be carried out at a position other than that which was stated in the question. Other omissions related to not operating light switches, failure to disconnect loads and testing to cpc rather than to Earth.

It is worth noting that many candidates wasted time describing the isolation process on questions where it was clear from the scenario or the context of the question that the circuit was not connected to the supply to start with. If it is unclear whether or not the circuit is connected to the supply it is sufficient to say 'after safe isolation' before going on to describe the test asked for in the question. Where the full description of a safe isolation process is required it will be clearly asked for in the question.

### **3 National pass rate**

Information needs to be added here

The national pass rate for the 2394-302 August 2015 examination is as follows:

<b>Exam series</b>	<b>Pass rate</b> (%)	<b>Fail rate</b> (%)
<b>August</b>	<b>57</b>	<b>43</b>

#### **Past examination series**

<b>Exam series</b>	<b>Pass rate</b> (%)	<b>Fail rate</b> (%)
<b>June 15</b>	<b>58</b>	<b>42</b>
<b>April 15</b>	<b>63</b>	<b>37</b>
<b>February 15</b>	<b>64</b>	<b>36</b>

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

Tues 13 October 2015 18:30 – 20:30

Tues 01 December 2015 18:30 – 20:30

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