

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

Chief Examiner's report – **June 2016**



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# 1 Introduction

The purpose of this document is to provide centres with feedback on the performance of candidates in the **June 2016** 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 June 2016 question paper was found to be in accordance with the scheme requirements.

The number of scripts received for this series was **approximately 370**.

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 and centres should be mindful that this qualification relates to the initial verification of electrical installations. It was evident from answers provided by some candidates that they confused this process with that required during periodic inspection and testing.

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.

The answers produced by candidates for this examination series were of a good standard but some candidates did not read the questions carefully. On a number of occasions it appeared that candidates only read part of the question. It also appeared that some answers related to similar questions asked on previous papers rather than the question being asked on this paper. These are common errors which appear on almost every examination series.

### Not reading the whole question carefully

It is important that candidates read each question carefully before constructing their answer. Failure to do so may cost the candidate marks, and in some cases, they will score no marks at all as their answer does not relate to the question being asked.

One question asked the candidate to identify five checks to be carried out on a surface mounted PVC conduit system **prior** to the cables being installed. Many answer incorrectly included reference to the condition of the cables and "all box lids fitted". These responses scored no marks.

### Terminology

The use of "live" and "line" are often used incorrectly. Candidates interchange the two terms when describing test procedures which often results in a loss of marks due to the testing

procedure being unclear. Not all candidates use the correct titles for tests and test instruments. The terminology used in BS 7671 and Guidance Note 3 **must** be used when answering questions.

A surprising number of candidates were unable to give the correct titles of the three inspection and testing documents that are handed to the client on completion of an initial verification.

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

One question required the candidates to state, in the correct sequence, the first three tests to be carried out on a new lighting circuit. A surprisingly high number of candidates were unable to do so. Common errors were wrong titles of tests and an incorrect test order. Less common errors included reference to ring final circuit continuity test, even though the question clearly stated a lighting circuit. Some answers listed the same test twice, using a different title - "continuity of cpc,  $R_1 + R_2$  test". It should be noted that " $R_1 + R_2$  test" is not the correct title of a test.

Another question required the candidate to state three conditions to be confirmed when carrying out a test of polarity. Many candidates were unable to state any correct answer.

Candidates were asked to identify the **minimum** IP code for the top surface of an accessible surface mounted light switch, the bottom surface of a distribution board and equipment located in zone 1 of a bathroom. Most answers correctly identified the minimum IP code for the first two conditions, but a number of answers indicated the candidate knew little or nothing about IP codes.

The final question on the exam paper required the candidate to describe, with the aid of a diagram, the earth fault loop path for a radial socket-outlet circuit. Generally, candidates provided good answers to this well established question. Some answers included the information on a diagram while others used a diagram and a description. Both methods are acceptable. Candidates who did not draw or describe a complete circuit scored little or no marks. It is evident that a number of candidates do not understand the basic principles of an electrical circuit and indicated that the fault current flowed from the fault, through the wiring and down the supply transformer's earth electrode to the general mass of earth. No complete circuit was evident.

A small but significant number of drawings were of very poor quality, while others contained more detail than was necessary. Additional detail is not penalised but does use up valuable time in the examination. It is not expected for the candidate to include such detail as the service cut-out or the internal arrangement within the distribution board, but the circuit must clearly show the complete fault path.

### **Inspection**

Most candidates provided good answers when asked to identify five checks to be made during an inspection of a surface mounted PVC conduit system. Those candidates who did not read the question carefully lost marks because they gave unrelated information.

## Testing

One question related to a test to verify the continuity of one of the main protective bonding conductors. This question was generally well answered but a small number of candidates were unable to identify the correct instrument.

When asked to identify the hazard presented by the test method, a number of answers referred to carrying out the test with the supply on and removing the bonding conductor. This is an unsafe incorrect procedure which should **not** be undertaken. The electrical supply **must** be safely isolated before this test is undertaken. For a new installation, as per the scenario, this test must be carried out before any part of the installation is energised.

Another question required a test to be carried out on a 30 mA RCD. A large number of answers did not identify the test currents or the maximum permitted disconnection times. A range of incorrect answers included test currents of 100 mA and 500 mA, and disconnection times of 0.2 s, 0.4 s, 200 ms and 500 ms.

Candidates were asked where on an installation a continuity of circuit protective conductor test is to be carried out. A number of candidates incorrectly gave answers such as "at the MET" and "at the furthest point". The requirement of this test is to confirm that all points on a circuit where an earth is required are connected to earth.

Candidates were also asked where on an installation a measurement of earth fault loop impedance ( $Z_s$ ) is carried out. A significant number of incorrect answers stated "at the main switch".

### 3 National pass rate

Information needs to be added here

The national pass rate for the 2394-302 June 2016 examination is as follows:

<b>Exam series</b>	<b>Pass rate (%)</b>	<b>Fail rate (%)</b>
<b>June 2016</b>	<b>59</b>	<b>41</b>

#### **Past examination series**

<b>Exam series</b>	<b>Pass rate (%)</b>	<b>Fail rate (%)</b>
<b>April 2016</b>	<b>47</b>	<b>53</b>
<b>Feb 2016</b>	<b>70</b>	<b>30</b>
<b>Dec 2015</b>	<b>57</b>	<b>43</b>



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