

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

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



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1 Introduction

The purpose of this document is to provide centres with feedback on the performance of candidates in the **April 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.

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. For this question, a number of candidates listed the test instruments rather than the tests.

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. 'R₁ + R₂' 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.

One question required the candidates to list the three documents that must be completed and handed to the client on completion of an initial verification of an installation. A small number of candidates were unable to correctly identify the three documents.

One question asked where different test results would be recorded. A large number of candidates incorrectly stated that continuity of main protective bonding conductors, Z_e and prospective fault current at the origin of the installation would be recorded on the Schedule of Test Results. A small number included the Schedule of Inspections as the place to record some of these results.

It must be remembered that this qualification uses the model forms found in Appendix 6 of BS 7671 as the basis for documentation.

Some candidates demonstrated little knowledge of the requirements for RCDs when providing additional protection. When asked to determine the maximum Z_s value for a 32A RCBO many candidates failed to demonstrate knowledge of Regulation 411.4.9 and that the maximum Z_s is determined by the residual operating current rather than overcurrent rating of the device.

A surprisingly large number of candidates were unable to correctly state the effect on an RCD of a short circuit current between live conductors. Many incorrectly stated that the RCD would trip.

Inspection

Most candidates provided good answers when asked to identify five inspection items relating to the main protective bonding conductor termination to a metallic water pipe. A number of candidates incorrectly gave information relating to the termination at the MET. A small number of answers related to the inspecting the cable throughout its length.

Some answers were vague such as "cable terminated correctly". Yes the cable must be terminated correctly, but what makes a "correct termination"? Good answers included comments such as "cable terminations are tight", and "no copper showing at the termination". Other correct answers related to the pipe clamp being correctly fitted and the presence of a warning label.

Testing

The following tests were covered on the question paper: insulation resistance, polarity, prospective fault current and RCD testing.

Common errors made by candidates when describing insulation resistance testing was not relating the test to the circuit described in the question, which was a lighting circuit controlled by means of a PIR. Many candidates gave generic answers and thus omitted to mention removing and linking out the PIR but did write about operating switches. Others tested to between line and cpc when BS 7671 and GN3 clearly state that the test is to Earth ie the cpc must be connected to the earthing system.

A large proportion of candidates were unable to state the three conditions identified in BS 7671 which are to be confirmed during a polarity test. Many stated 'Switches in the line conductor' or 'circuit breakers in the line conductor only' and failed to state that this applies to single-pole switches or protective devices.

One question related to a prospective fault current test at the origin of a three-phase installation. The candidate was asked to state the terminals, between which, the test was to be carried out. Some candidates stated where the tester would be connected. This would be an acceptable answer if the tester was a two lead instrument, but if the instrument uses three test leads then the question has not been answered. Stating "line, neutral and Earth" when a prospective fault current test is carried out does not indicate the terminals, between which, the **test** is carried out. Some candidates only gave answers relevant to a single phase installation.

The second part of the question asked the value to be recorded. Some candidates listed all possible L-N and L-E test combinations and then gave answers such as 'the highest' or 'the highest x2'. The 'highest' would only be correct if line – line results were obtained and the 'highest x2' would only be correct if only L-N for each phase was tested.

The final question related to testing and RCBO (RCD) and asked candidates to state the instrument tests, the applied current and the maximum permitted operating times. Many candidates did not state the currents but instead stated '½ x, 1x and 5x'. Candidates must state the actual currents i.e. 15 mA, 30 mA and 150 mA when answers this type of question. Some lost marks because they did not state the need to test at 0° and 180° and some gave maximum operating times relating to BS devices rather than the appropriate BS EN device as identified in the scenario.

3 National pass rate

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

Exam series	Pass rate (%)	Fail rate (%)
April 2015	63	37

Past examination series

Exam series	Pass rate (%)	Fail rate (%)
February 15	64	36
December 14	41	59
October 14	60	40
August	54	46

Forthcoming Exam Dates are:

Tues 13 October 2015 18:30 – 20:30
Tues 11 August 2015 18:30 – 20:30

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