

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

Chief Examiner's report – **June 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 **June 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 June 2014 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.

The answers produced by candidates for this examination series were of a higher standard than those offered in the April series. There are still a significant number of candidates that do not read the questions carefully. A particular question related to carrying out an earth fault loop impedance test in order to confirm the effectiveness of an earth electrode, which formed part of a TT system. A number of answers incorrectly gave information that related to testing the electrode using an earth electrode resistance tester.

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

The use of "live" rather than "line" cost candidates marks due to the descriptions of testing procedures being unclear.

Knowledge of BS 7671 and Guidance Note 3

One question required the candidates to identify the maximum earth fault loop impedance value permitted by BS 7671 when a 30 mA RCD main switch was installed in a TT system. Few candidates were able to carry out the calculation using the sensitivity of the RCD and the maximum permitted voltage of 50 V.

When asked to identify three notices that are required by BS 7671 for the three-phase installation described in the source document, most candidates correctly stated a periodic inspection notice, an earthing and bonding connection notice and an RCD test notice. A number of incorrect answers included reference to a non-standard colours notice and to a voltage warning notice.

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-C-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-S system and a small number of drawings indicated a TT system. A significant number of candidates believed that the fault current

flowed to earth at the supply transformer. 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 within a single-phase distribution board. A small number of answers incorrectly referred to final circuit cable runs and the presence of information that sits on the outside of the board.

The second part of this question required the candidate to list items that must be included on a distribution board schedule as stated in regulation 514.9.1 of BS 7671. A large number of answers referred to detailed information required to be entered in the section of the Electrical Installation Certificate headed "Supply characteristics and earthing arrangements". Some of this information is not required on the board schedule and so the candidates lost marks.

Testing

One question required a list of the steps needed to complete safe isolation at the origin of a three-phase installation. 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.

A description of a test to determine the R_1+R_2 value of a simple lighting circuit was required by one question. The circuit consisted of a single luminaire and a one-way switch. Poor quality descriptions were given by many candidates. A link between the circuit line and cpc at the distribution board was usually undertaken, but a single test was then carried out. Few candidates confirmed the presence of an earth connection at both switch and luminaire. "Test at the furthest point" was a common comment.

When asked to determine, by calculation, the expected test results during the three stages of a continuity of ring final circuit test, most candidates were able to do so. The most common error was the use of a temperature correction factor during the calculation. As the testing process was being carried out at 20 °C, and the conductor resistance values were also at 20 °C, there was no requirement to apply the correction factor.

Candidates were asked to explain the expected pattern of test results when carrying out an earth fault loop impedance measurement at each socket-outlet on the ring circuit. Many candidates incorrectly believed that the results would be the same at each socket-outlet.

3 National pass rate

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

Exam series	Pass rate (%)	Fail rate (%)
June	62	38

Past examination series

Exam series	Pass rate (%)	Fail rate (%)
April 2014	39	61
February 2014	47	53
December 2013	52	48
October 2013	51	49
August 2013	62	38

Forthcoming Exam Dates are:

Tues	12 August 2014	18:30 – 20:30
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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