

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

Chief Examiner's report – **December 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 **December 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 December 2015 question paper was found to be in accordance with the scheme requirements.

The number of scripts received for this series was approximately 840.

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 some 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.

Not reading the whole question carefully

When asked to list the required steps to complete safe isolation at the origin of a three-phase installation, many answers related to the isolation of an individual circuit.

Another question required the candidate to identify the checks to be carried out on three compartment steel under floor trunking **before** the cables were installed. A number of checks related to installed cables and so these answers scored no marks.

One question related to insulation resistance testing. The part a) of the question asked about the instrument to be used, the test voltage, minimum acceptable insulation resistance values and checks to be made to the test instrument. The part b) required the candidate to describe the test procedure. Part b) indicated that the information given in part a) need not be repeated when describing the test procedure. Many candidates ignored this and repeated the

information given in part a) and added little information about the test procedure. The candidate was not penalised for stating information twice but the candidate used up valuable examination time without scoring any additional marks.

Another question asked the candidate to state five characteristics specific to the DNO's supply that must be made available to the inspector. Some responses listed checks to be made to the equipment during an inspection rather than the information which is entered on the Electrical Installation Certificate under the heading 'Supply characteristics'.

Dangerous procedures

When asked to describe a safe isolation procedure at the main isolator of a three-phase installation, a small number of answers indicated dangerous procedures. Some answers did not include locking off. Other answers involved using a voltage indicator which had not been checked for correct operation before, and after, confirming the isolation. A very small number of candidates incorrectly thought it was appropriate to lock off the main switch without any testing to confirm the isolation. Information that was most common omitted was retaining the key after locking off and the posting of a suitable sign at the locking point. This procedure is fundamental to safety when working on electrical installations and gives cause for concern that some candidates do not know how to carry out this procedure correctly.

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. 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.

Knowledge of BS 7671 and Guidance Note 3

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. Incorrect responses included "Schedule of tests", "Installation report" and "Electrical Installation Condition Report".

When asked to state, in the correct sequence, the first three tests to be carried out on a new radial circuit, many candidates were unable to do so. Common errors included "continuity of circuit conductors", "continuity of ring final circuit conductors", "main protective bonding", carrying out polarity testing before insulation resistance testing and prospective fault current testing.

Many candidates appear not to understand the terms 'basic protection' and 'additional protection'.

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 lighting 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.

Other poor answers described an earth fault loop impedance test rather than identifying the fault path.

Inspection

One question asked what would be verified when inspecting for basic protection provided by 'insulation of live parts'. Many candidates were not familiar with this fundamental protective measure and as a result were not able to offer any suitable answer. A simple check to ensure that insulation was not damaged and insulation was not excessively removed at terminations exposing live parts, was all that was required. Insulation resistance testing was not appropriate because the question related to inspection.

A similar problem arose when candidates were asked to state what would be verified when inspecting for basic protection provided by barriers **within** an enclosure. Many answers incorrectly related to the enclosure even though the question was asking about the internal barriers. Presence of, correctly fixed and not damaged are three simple checks to confirm the effectiveness of the barriers.

Most candidates provided good answers when asked to identify five checks to be made during an inspection of three compartment metallic under floor trunking. Some answers indicated little understanding of the difference between earthing and bonding. It appears that many candidates believe the two terms mean the same thing. Again, candidates confuse the process of inspection with that of testing.

Testing

When asked to describe an insulation resistance test on a single-phase circuit many answers lacked detail. Information omitted from answers given by candidates included not stating where the test leads were placed during the test. Vague statements such as 'test line to earth' were used instead of identifying where on the installation the test was being carried out. Often reference to the removal of loads and/or electronic devices and operating two-way switches during the testing process were not included in the description. Testing to a disconnected cpc was another common error. It is required that the test is made to earth with all earthing and bonding arrangements being connected. This is clearly stated in GN3.

3 National pass rate

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

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

Past examination series

Exam series	Pass rate (%)	Fail rate (%)
August 2015	57	43
October 2015	56	44

Forthcoming Exam Dates are:

Tues 09 February 2016 18:30 – 20:30
Tues 19 April 2016 18:30 – 20:30

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