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

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Chief Examiner's report – February 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 February 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 February 2016 question paper was found to be in accordance with the scheme requirements.

The number of scripts received for this series was **approximately 570**.

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. 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.

When asked to state the steps required to complete safe isolation at the origin of a single-phase consumer unit, many answers related to the isolation of an individual circuit.

Another question required the candidate to identify the checks to be carried out on cables and conductors **within** a three phase distribution board. A number of answers related to the distribution board fixings and IP rating, which do not relate to cable and conductors. Other incorrect answers made reference to signs of arching and overheating. This qualification relates to initial verification of new work and not to periodic inspection.

Dangerous procedures

When asked to describe a safe isolation procedure of a single phase consumer unit, 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. The most commonly omitted information 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 state, in the correct sequence, the first five tests to be carried out on a new radial socket-outlet 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 "radial socket-outlet circuit" and the inclusion of prospective fault current testing and measurement of the external earth fault loop impedance.

Another question required the candidate to state the minimum IP code for the front surface of a consumer unit, the accessible top surface of an isolator and a shaver unit in zone 2 of a bathroom. Most candidates correctly identified the minimum IP code for the first two conditions, but few correct answers were evident for the bathroom location. The most common incorrect answer was IP 44, which is not the minimum requirement.

A significant number of candidates were unable to state the documents to be handed to the client following the initial verification of an installation.

When asked to state the results to be recorded following the completion of an RCD test, many candidates were unable to do so.

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 number of answers did not relate to a TN-S system, the system identified in the scenario.

Inspection

Most candidates provided good answers when asked to identify five checks to be made during an inspection of cables and conductors **within** a three-phase distribution board. Those candidates who did not read the question carefully lost marks because they gave unrelated information.

Testing

One question related to a continuity of circuit protective conductors test and determining the $R_1 + R_2$ value of a lighting circuit. Part a) of the question asked about the instrument to be used and what must be done in relation to the leads to ensure accurate test results. 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. This unnecessary repeating of information when describing test procedures has been evident in a number of examination series.

A small number of answers included a detailed description of how the circuit would be isolated and then gave almost no information on how the test would be conducted. As the question asked specifically about the test procedure, candidates score few marks.

Other candidates decided to use a "long lead" to carry out the test. This is an acceptable method but the question required an $R_1 + R_2$ value to be determined. None of the candidates using the "long lead" method determined this value.

A large number of answers stated that a single test would be carried out at the furthest point on the circuit. This test will give the highest reading, which will be recorded, but it does not confirm that all points on the circuit that require earthing are indeed earthed. A test is required at each point.

Another question concerned the testing of an RCBO. A number of candidates were unable to correctly name the test instrument. A significant number of answers incorrectly indicated that only loads that may be damaged during testing needed to be removed during testing. Many answers did not include the correct test currents to be applied, while other answers did not state the correct maximum permitted disconnection times. The most common error was stating a maximum disconnection time of 200 ms when tested at 30 mA.

3 National pass rate

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

Exam series	Pass rate (%)	Fail rate (%)
February 2016	**70**	**30**

Past examination series

Exam series	Pass rate (%)	Fail rate (%)
December 2015	**63**	**37**
October 2015	**56**	**44**
August 2015	**57**	**43**

Forthcoming Exam Dates are:

Tues 19 April 2016 18:30 – 20:30

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