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

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Chief Examiners' report – December 2012



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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 2012 examination for 2394-302 Principles, Practices and Legislation for the Initial Verification of Electrical Installations.

The Chief Examiners' 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 2012 question paper was found to be in accordance with the scheme requirements.

The examination entry for this series was approximately 750.

Candidates appeared to have no issues with the paper format. 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.

Candidates, once again, confused this qualification covering initial verification of new work with the qualification relating to periodic inspection of an existing installation. This resulted in many candidates offering wrong information and consequently losing marks.

Knowledge of BS 7671 and Guidance Note 3

A small number of candidates were unable to state the correct names for the documents that must be handed to the client on completion of the inspection and testing process. Some answers incorrectly stated the use of an Electrical Installation Condition Report (EICR).

Candidates were able to identify three labels, required by BS 7671, that are normally present at the main intake position of a domestic installation which incorporated photovoltaic panels. Some incorrect answers included bonding labels, voltage label, wiring colours to different versions of BS 7671 and a DC isolator label.

When asked to identify the three areas of responsibility to be recorded on certification documents, candidates generally identified the areas correctly, but some responses did not use the correct terminology. In these cases some marks were lost where it was not clear what the candidate was identifying.

Procedure

A large number of candidates were unable to state the actions to be taken in the event of an unsatisfactory test result. Some incorrect answers included reporting the problem to the client and others stated recording the problem on an EICR.

Inspection

It appears that many candidates believe that the use of the sense of smell can be used to locate faults during the initial inspection of a new installation. As the inspection takes place before the installation has been energised, this is not possible.

Knowledge of IP coding continues to be a weak area for candidates. Many answers provided by candidates appeared to be random.

When asked to identify the "safe zones", where cables are buried in a wall, candidates were unable to correctly identify the areas. Most answers correctly stated horizontal and vertical from an accessory, but there was much confusion when identifying the zones in corners and near ceilings. The dimensions were often wrong and some candidates indicated that the cables must run outside of the identified area.

One question required candidates to identify the three checks to be made on installed electrical equipment in order to verify compliance with BS 7671. Many incorrect answers referred to the electrical installation in general and were not related to electrical equipment.

Candidates were asked to inspect newly installed socket-outlets to ensure compliance with BS 7671. The answers provided by candidates were usually correct but lacked detail. "Connections" need to be checked but the answer needs to include what in particular is being checked. This could be that they are "tight", the conductor is in the correct terminal or maybe that no excessive amount of copper conductor is exposed. The lack of detail means that full marks were not awarded. Checking for overheating may be valid for periodic inspection but it is not valid for initial verification as the circuit has not yet been energised.

Testing

Many candidates were unable to correctly state three instruments that may be used to determine the resistance of an earth electrode system that is part of a TT supply. Most candidates correctly identified an earth fault loop impedance tester and an earth electrode resistance tester. The third instrument incorrectly stated was usually a low resistance ohmmeter or an insulation resistance tester. Few candidates identified a stakeless earth electrode tester. A small number of candidates lost a mark because they were unable to state the correct title for an earth fault loop impedance tester.

When asked to explain how a PFC test result may be used to determine if a circuit breaker was suitable, many candidates incorrectly referred to disconnection times of 0.4 s or 5 s. Many descriptions did not make it clear that the circuit breaker's maximum breaking capacity must be at least equal to the PFC test result.

Another question asked the candidate to describe a test to confirm correct supply polarity. Many candidates ignored the reference to "supply" and explained how an $R_1 + R_2$ test would achieve this. Others stated that visual inspection was sufficient. Most candidates did describe a procedure using a voltage indicator but many answers failed to include what the instrument would indicate during each test so that correct polarity could be identified.

A description of a test to confirm the continuity of ring final circuit conductors was required to answer another question. Generally this was well answered but some candidates failed to provide all the necessary detail and as a result lost marks.

The final question on the paper required the candidate to provide a fully labelled diagram that identified the earth fault path of a particular circuit. This type of question has been asked on many examinations papers. Many drawings were poor with few labels. Other diagrams were incomplete with the most common omissions being incomplete or incorrect fault path and systems that were not connected to earth. A common error showed the earth fault current flowing to earth via the supply transformer earth electrode and going nowhere. This is particularly concerning as this indicates that many candidates have no concept of a circuit and the path of the current flowing in the circuit.

3 National pass rate

The national pass rate for the 2394-302 December 2012 examination is as follows:

Exam series	Pass rate (%)	Fail rate (%)
December	**47**	**53**

Past examination series

Exam series	Pass rate (%)	Fail rate (%)
October	**45**	**55**
August	**34**	**66**
June	**43**	**57**
April	**57**	**43**

Forthcoming Exam Dates are:

05 December 2012
13 February 2013
17 April 2013 *(originally April date was on the 3rd April. If you need to administer an exam on the original date please call our customer relations team on 0844 543 0000* ***before 31st January****, since the date wont be available on walled garden).*
26 June 2013
21 Aug 2013

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