



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Electrical Wireman Intermediate Trade Test Mock Practical Test Paper

此文件關於電氣佈線工工藝測試考題。如有需要索取此文件的中文版本，
請致電 2100 9000 與香港建造業工藝測試中心聯絡。

Disclaimer

No part of this material may be reproduced or transmitted in any form or any means without the written permission of the CIC. Whilst reasonable efforts have been made to ensure the accuracy of the information contained in this material, the CIC nevertheless would encourage readers to seek appropriate independent advice from their professional advisers where possible and readers should not treat or rely on this material as a substitute for such professional advice for taking any relevant actions.

Enquiries

Enquiries on this Material may be made to the Hong Kong Construction Industry
Trade Testing Centre at:

95, Yue Kwong Road
Aberdeen
Hong Kong

Tel: (852) 2100 9000
Fax: (852) 2100 9090
Email: enquiry@cic.hk
Website: www.cic.hk

Practical Test Paper for Trade Test (IEW)

Job Title : Electrical Wireman (IEW)

Skill Level : Intermediate

Time Limit : 3 hours

This test has a total of 2 tasks and the full score is 100. To pass the practical test, candidates must achieve the passing marks for each task and the Test of colour vision.

Complete the following two practical tasks at the specified locations in the following sequence:

Task 1 Installation of a radial 13A socket outlets circuit

Task 2 Installation of a radial circuit for a lighting final circuit

Practical Test Paper for Trade Test (IEW)

1A. Title: Installation of a radial 13A socket outlets circuit

Drawing No.1 shows an installation layout of a radial circuit for three 13A socket outlets. This installation is installed with the steel cable trunking and steel rigid conduit. The Distribution board, socket outlet boxes, parts of steel cable trunking and parts of the steel rigid conduits are pre-installed on the wall.

1B. Candidate is required to complete the followings:

1. To fabricate the section of electrical steel rigid conduit "A" according to Drawing No.1.
2. To install the fabricated electrical steel rigid conduit "A" on the wall and assemble to the steel socket outlet boxes according to Drawing No.1.
3. To wire up the radial circuit (including the circuit protective conductor) from the distribution board to the three socket outlets through the electrical steel cable trunking and steel rigid conduit.
4. To connect the cables to the 3 socket outlets and the distribution board to form a complete radial circuit.

1C. Measurement and functional test

1. Continuity Test:

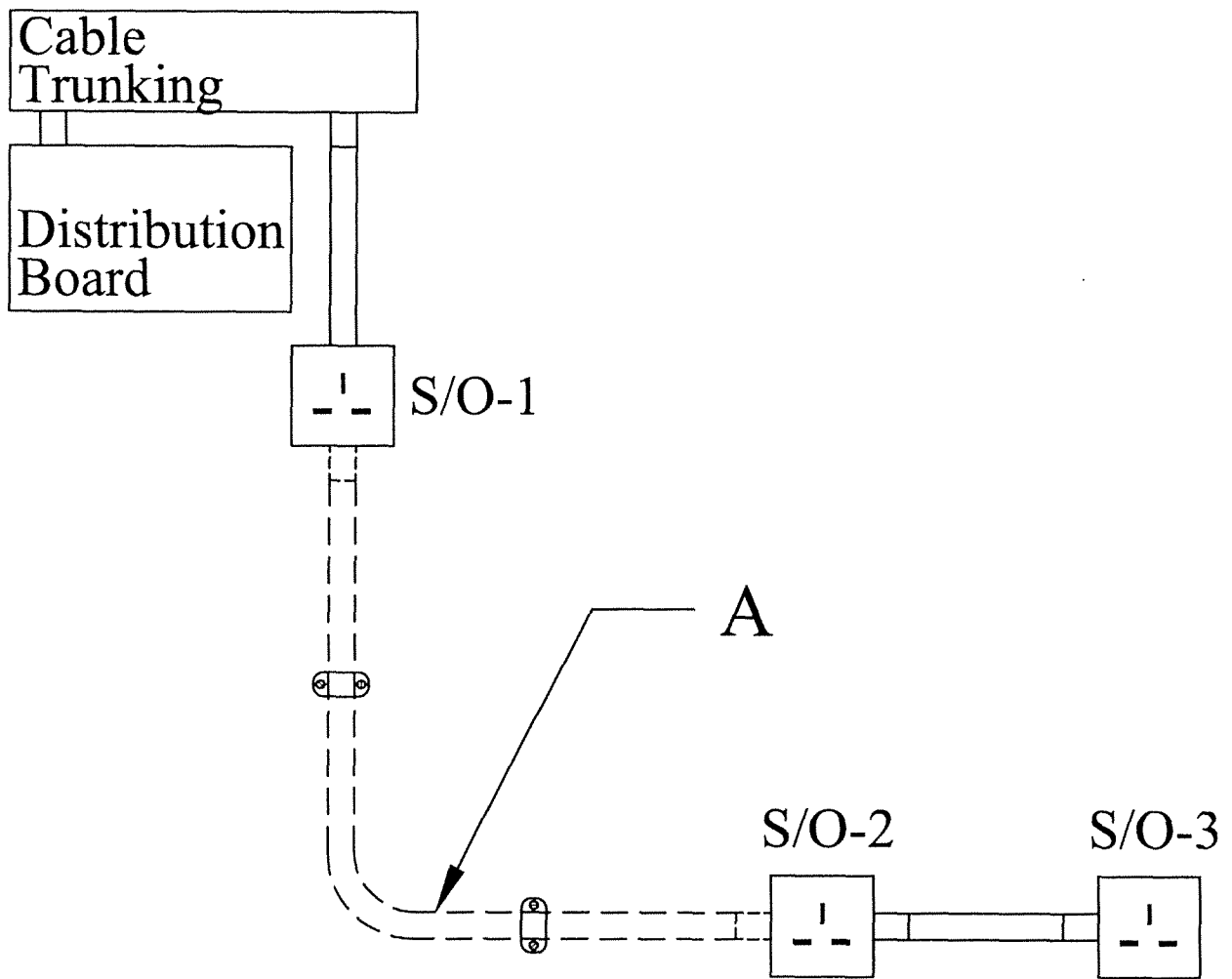
Candidate should using instruments and proper method to conduct the Continuity of the Circuit Protective Conductor, and then record the test results accurately.

Test should be under the direct supervision of the invigilator

Continuity of the Circuit Protective Conductor	
Test item	Reading of the instrument (Unit)
Socket 1	()
Socket 2	()
Socket 3	()

2. Functional Test:

Functional Test should be conduct by invigilator.



Drawing No.1 – Wiring diagram of a Radial Circuit of 13A Socket Outlets

1D. Materials:

Item	Description	Quantity
1.	Wiring board	1
2.	Electrical steel rigid conduit, 20mm	1
3.	Distance saddle, 20mm	2
4.	Socket coupler, 20mm	2
5.	Bush, 20mm	2
6.	13A socket outlet	3
7.	Electric Cable, 1/C, PVC, Brown, 2.5mm ²	1
8.	Electric Cable, 1/C, PVC, Blue, 2.5mm ²	1
9.	Electric Cable, 1/C, PVC, Yellow/Green, 2.5mm ²	1

1E. Tools:

Item	Description	Quantity
1.	Tape rule, 3.6m	1
2.	Scriber, Single end	1
3.	Conduit bender	1
4.	Hacksaw	1
5.	File, flat	1
6.	Conduit Reamer	1
7.	Oil pot	1
8.	Stock and die, 20mm	1
9.	Glove	1
10.	Pliers, slip joint	1
11.	Pliers, self gripping, 200mm	1
12.	Cable stripper	1
13.	Pliers, diagonal cutting, 150mm	1
14.	Screwdriver, slotted head, 50mm	1
15.	Screwdriver, slotted head, 80mm	1
16.	Screwdriver Tester	1

1F. Instrument:

Item	Description	Quantity
1.	Continuity Tester	1
2.	Multi-meter	1

2A. Installation of a radial circuit for a lighting final circuit

Drawing No.2 shows an installation layout of a lighting final circuit with 2-way switching. This installation is installed with the electrical steel cable trunking and PVC rigid conduit. The Distribution board, outlet boxes, parts of the steel trunking and parts of the PVC rigid conduits are pre-installed on the wall.

2B. Candidate is required to complete the following:

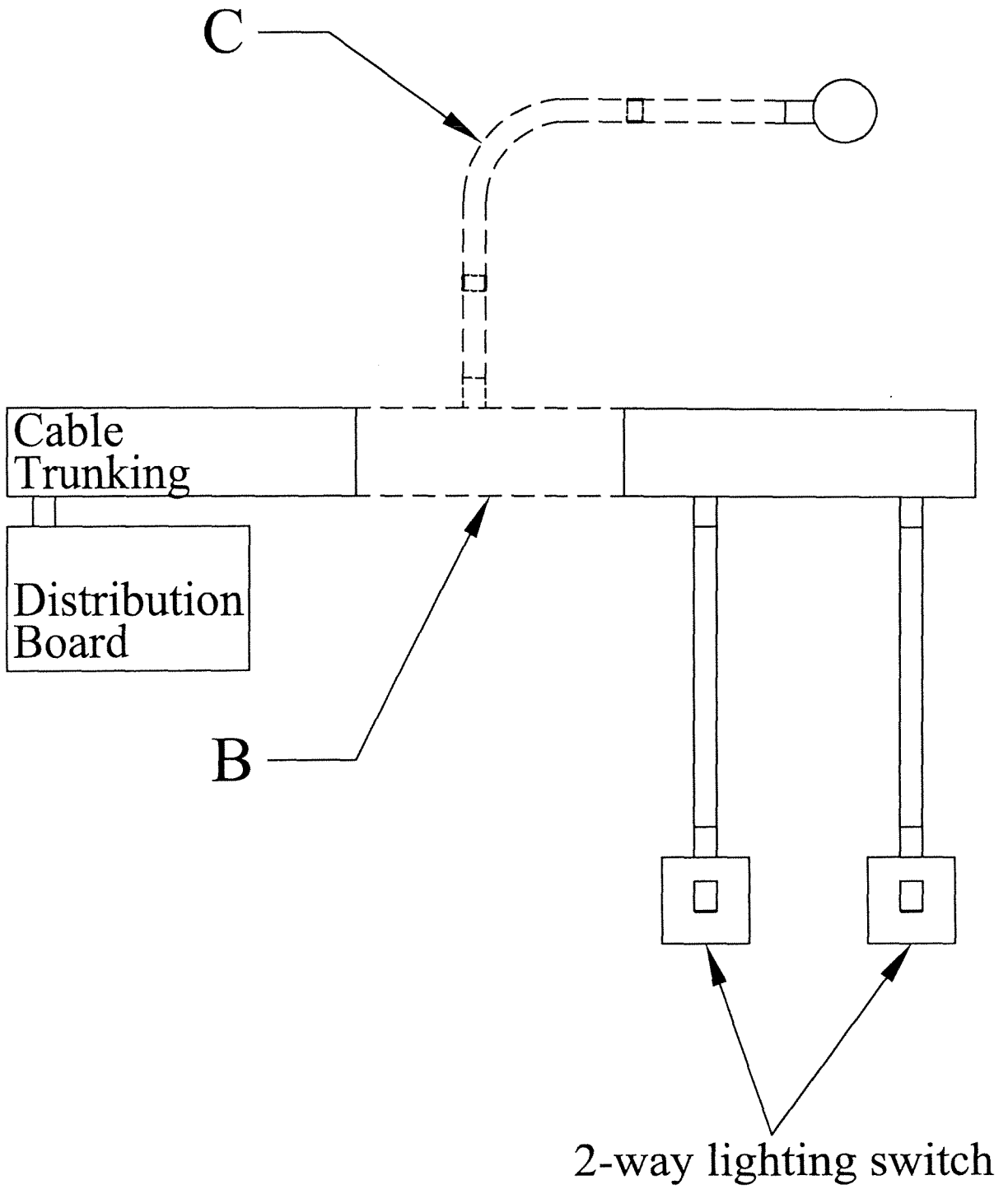
1. To fabricate the steel Cable trunking "B" according to Drawing No.2.
2. To install the fabricated electrical steel cable trunking "B" on the wall and assemble to the pre-installed steel cable trunking according to Drawing No.2.
3. To fabricate the electrical PVC rigid conduit "C" according to Drawing No.2.
4. To install the fabricated electrical PVC rigid conduit "C" on the wall and assemble to the steel cable trunking "B" and the PVC circular box for lamp holder according to Drawing No.2.
5. To wire up a lighting final circuit with 2-way switching (including the circuit protective conductor) from the distribution board to the switches and the lamp holder through the steel cable trunking and the electrical PVC rigid conduit.
6. To connect the cables to the 2-way lighting switches, lamp holder and the distribution board to form a complete lighting final circuit with 2-way switching.

2C. Measurement and functional test

1. Continuity Test:
Candidate should using instruments and proper method to conduct the Continuity of the Circuit Protective Conductor, and then record the test results accurately. Test should be under the direct supervision of the invigilator

Test item	Reading of the instrument (Unit)
Continuity of the Circuit Protective Conductor	()

2. Functional Test:
Functional Test should be conduct by invigilator



Drawing No.2 – Wiring diagram of a lighting final circuit with 2-way switching

2D. Materials:

Item	Description	Quantity
1.	Wiring board	1
2.	Steel cable trunking, 75mm × 75mm	1
3.	Fixing screw for trunking assembling, 3/16"	16
4.	Copper link	2
5.	Electrical PVC rigid conduit, 20mm	1
6.	Coupler, 20mm	2
7.	Bush, 20mm	2
8.	Clip saddle, 20mm	2
9.	Circular box, single way	1
10.	2-way lighting switch	2
11.	Lamp holder	1
12.	Electric cable, 1/C, PVC, Brown in colour, 1mm ²	6m
13.	Electric cable, 1/C, PVC, Blue in colour, 1mm ²	2m
14.	Electric cable, 1/C, PVC, Yellow/Green in colour, 1mm ²	4m

2E. Tools:

Item	Description	Quantity
1.	Tape rule, 3.6m	1
2.	Scriber, single end	1
3.	Engineering square	1
4.	Vice	1
5.	Hacksaw	1
6.	File, engineer, flat, 200mm	1
7.	Safety goggle	1
8.	Glove	1
9.	Drill bit, Ø 6.5mm	1
10.	Hole saw, Ø 20mm	1
11.	Drilling machine, portable	1
12.	Wooden block, 72mm × 72mm	1
13.	Screwdriver, slotted head, 50mm	1
14.	Screwdriver, slotted head, 80mm	1
15.	Screwdriver Tester	1
16.	Pliers, combination, 150mm	1
17.	PVC conduit cutter	1
18.	Bending spring	1
19.	Pliers, diagonal cutting, 150mm	1
20.	Cable stripper	1

2F. Instrument:

Item	Description	Quantity
1.	Continuity Tester	1
2.	Multi-meter	1

Notes to Candidates:

1. Candidates should read the test papers carefully and ask the invigilator for any queries.
2. Candidates should study the drawings and specifications attached to test papers, if any, before the test begins.
3. Candidates should carry out the test according to test papers, working drawings and specifications provided.
4. Candidates shall bring their own safety shoes, other safety equipment will be provided by trade testing centre. Candidates must take all necessary safety precautions to ensure work safety.
5. All tools and materials required by the test will be provided by trade testing centre, candidates should check and ensure their adequacy and quality. Candidates shall use the tools and materials properly based on trade practice. All the tools must be returned to trade testing centre after the test. The candidates may ask the invigilator for any problems.
6. Candidates are required to handle and move the tools and materials for use in the test, and to carry out associated works.
7. Invigilator will take record photos periodically during the test.
8. Candidates are not allowed to take any photo or video with cameras or mobile phones.
9. Candidates are not allowed to use their mobile phones during the trade tests, except for emergency situation.
10. The marking scheme is based on the following criteria :

- a) Understanding of drawing and specification
- b) Preparation works before commencement of test
- c) Working procedures
- d) Accuracy and quality of works
- e) Progress of works
- f) Proper handling and use of materials
- g) Proper use of tools and equipment
- h) Safety precautions
- i) Considerate of other trades
- h) Housekeeping after completion of test

11. All candidates must stop when time is up.

12. Candidates are required to return the test paper to invigilator after the test.

13. Offering bribe to invigilator is an offence in law and trade testing centre will report to the ICAC for any such case.

In the event that the candidate fails to take any necessary safety precautions and / or works in any dangerous situations, he / she will be assessed failed