



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Control Panel Assembler Trade Test Mock Practical Test Paper

此文件關於控制板裝配工工藝測試考題。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。

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Practical Test Paper for Trade Test (EEP)

Job Title : Electrical Control Panel

Skill Level : Skilled worker

Time Limit : 3 hours

Complete the following two topics of practical test in the designated test place.

Topic No.1: (ECP-A1) Electrical instrumentation wiring

Time allowed: 1 hours & 30 minutes. (Marks are counted for 50 of total marks 100, passing mark is 30)

Topic No.2: (ECP-A2) Three Phase Motor Direct On Line Starting Control (Local and remote control panel) wiring

Time allowed: 1 hours & 30 minutes. (Marks are counted for 50 of total marks 100, passing mark is 30)

- ◆ There are two topics of this test and total marks are 100. The requirement of pass this test is that Candidate should get the passing marks for both topics.
- ◆ The test will be assessed as fail if incorrect cable colour codes have been occurred at the connection of supply source made by candidate during the functional test.
- ◆ Candidates please note: According to the regulation of existing "Electricity Ordinance", any fixed electrical installation can be only carried out by the Registered Electric Workers. To cope with this regulation, the suitable arrangements should be made during the test.

Practical Test :

Topic No.1: (ECP-A1) Electrical instrumentation wiring

1. According to given circuit diagram (Diagram 1) by using adequate cables and good workmanship, connecting from Voltmeter, Ammeter, Current transformer, Voltmeter selector, Ammeter selector, Indicating lights, fuse, etc. and complete the control panel circuit. And put on indicating markers on each end of wirings :
2. Visual inspection before power supply to panel, including :
 - Wiring arrangement in tidy and good order
 - Wiring fixed properly and rigidly connected
3. Candidate to hand over the finished two items to the Invigilator for checking, and the Invigilator will connect to Power supply and perform the functional test. Candidate should only stand aside to visualize the testing results and follow the instruction of the Invigilator to complete the table below with signature.

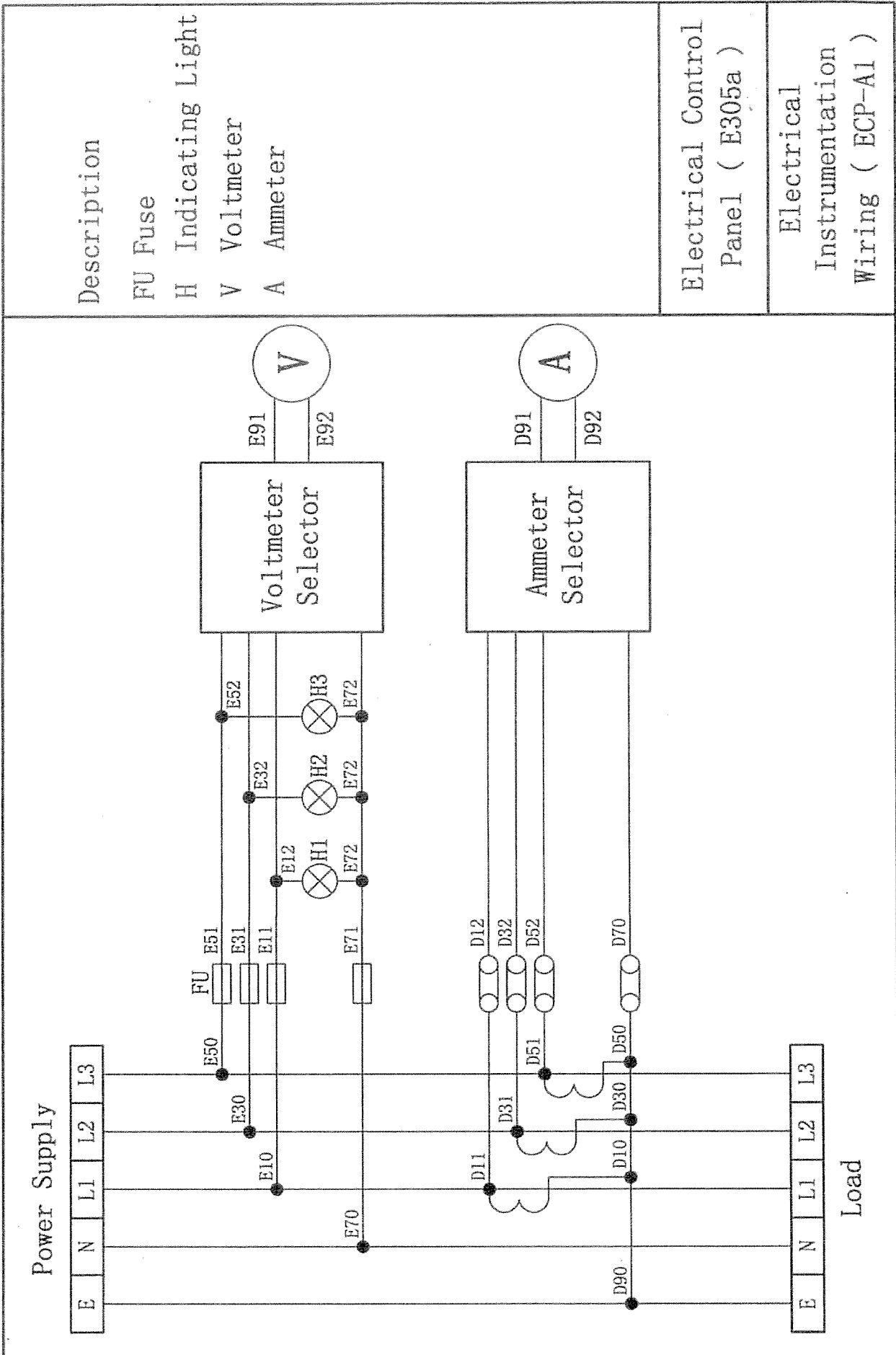
4. Material, Tools and Instrument Table :

	Item	Description	Quantity
Material	1	Electrical Instrument wiring panel	1
	2	Wires, 1 core PVC insulated, Brown, Black, Gray, Blue and Yellow/green, 1.5 mm ²	@ 2 m
	3	Wires, 1 core PVC insulated, Brown, Black, Gray, Blue and Yellow/green, 2.5 mm ²	@0.5 m
	4	Wires indicating markers (numbers & alphabets)	1 box
Tools	1	Screw drivers, flat head, 50mm	1
	2	Pliers for electrician, 150mm	1
	3	Pliers, long nose, 150mm	1
	4	Pliers, diagonal cutting, 150mm	1
	5	Cable stripper	1
Instrument	1	Insulation and continuity tester	1
	2	Multimeter	1

Remarks :

Candidate should return tools and Exam paper to Invigilator and checked before left.

5. Diagram 1



Description

FU Fuse

H Indicating Light

V Voltmeter

A Ammeter

Electrical Control Panel (E305a)

Electrical Instrumentation Wiring (ECP-A1)

Topic No.2: (ECP-A2) Three Phase Motor Direct On Line Starting Control

1. According to Diagram 2, use suitable wires and good workmanship to connect from contactor, overload relay, push button, Indicating light, fuse, etc. and complete the Three Phase full load starting control circuit. And put on indicating markers on each end of wirings :
2. Visual inspection before power supply to panel, including :
 - Wiring arrangement in tidy and good order
 - Wiring fixed properly and rigidly connected
 - If motor full load current is 6A, setting of current overload relay should be _____A
3. Candidate to hand over the finished two items to the Invigilator for checking, and the Invigilator will connect to Power supply and perform the functional test. Candidate should only stand aside to visualize the testing results and follow the instruction of the Invigilator to complete the table below with signature.

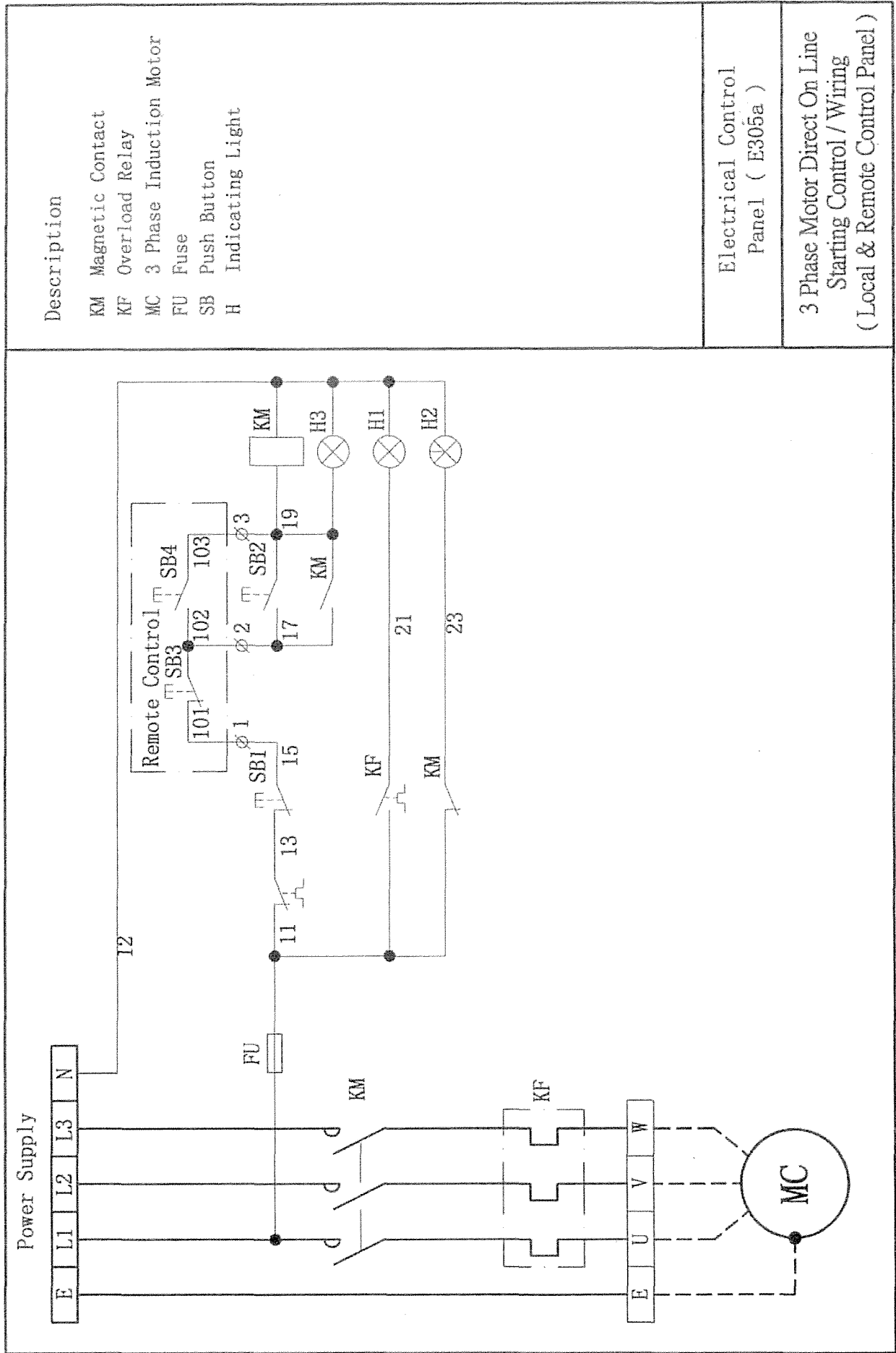
4. Material, Tools and Instrument Table :

	Item	Description	Quantity
Material	1	3 Phase Motor Starting Control Instrument Wiring Panel	1
	2	Wires, 1 core PVC insulated, Brown and Blue, 1.5 mm ²	@2 m
	3	Wires, 1 core PVC insulated, Brown, Black, Gray, Blue and Yellow/green, 4 mm ²	@1 m
	4	Wires indicating markers (numbers & alphabets)	1 box
Tools	1	Screw drivers, flat head, 50mm	1
	2	Pliers for electrician, 150mm	1
	3	Pliers, long nose, 150mm	1
	4	Pliers, diagonal cutting, 150mm	1
	5	Cable stripper	1
Instrument	1	Insulation and continuity tester	1
	2	Multimeter	1

Remarks :

Candidate should return tools and Exam paper to Invigilator and checked before left.

5. Diagram 2



Description

- KM Magnetic Contact
- KF Overload Relay
- MC 3 Phase Induction Motor
- FU Fuse
- SB Push Button
- H Indicating Light

Electrical Control
Panel (E305a)

3 Phase Motor Direct On Line
Starting Control / Wiring
(Local & Remote Control Panel)

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