

INSTITUTIONAL ASSESSMENT

Trainee's Name:	
Trainer's Name:	
Date:	
RESULT:	
Qualification:	ELECTRICAL INSTALLATION & MAINTENANCE NC II

NOTE: *Critical aspects of competency

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<p>COMPETENCY STANDARD</p> <p>UNIT OF COMPETENCY</p>	<p>ELECTRICAL INSTALLATION & MAINTENANCE NC II</p> <ul style="list-style-type: none"> • Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems • Install Electrical Protective devices for distribution, power, lighting, auxiliary, lightning protection and grounding system • Install Wiring Devices of Floor and Wall Mounted Outlet Lighting Fixture/Switches and Auxiliary Outlets 			
<p>Ways in which evidence will be collected: <i>[tick the column]</i></p> <p>The evidence must show that the trainees ...</p>		Written Exam	Oral Questioning	Demonstration
<input type="checkbox"/> Plans and prepare works are communicate and confirm to ensure clear understanding				
<input type="checkbox"/> Checks <i>tools, equipment and PPE</i> needs to install electrical wiring are identifies, to ensure they work correctly as intends and are safe to use in accordance with establish procedures				
<input type="checkbox"/> Checks materials needed for work are obtained in accordance with established procedures				
<input type="checkbox"/> Follows <i>safety procedures</i> in installing electrical protective devices in line with the job requirements				
<input type="checkbox"/> Performs the correct procedure in <i>installing of electrical protective devices</i> should be in line with job requirements and PEC				
<input type="checkbox"/> Follows schedule of work in installing of electrical protective devices to ensure to be complete in an agreed time and to a quality standard and with a minimum waste				
<input type="checkbox"/> Follows schedule of work to ensure work is completed in an agreed time, to a quality standard and with a minimum waste				
<input type="checkbox"/> Seeks further instructions from a supervisor if unplanned events or conditions occur				

<input type="checkbox"/> Undertakes on-going checks of quality of work in installing of electrical protective devices are done in accordance with instruction and requirements			
<input type="checkbox"/> Follows safety procedure in installing lighting fixture and auxiliary outlet in line with the job requirements			
<input type="checkbox"/> Performs the correct procedure in installing lighting fixture and auxiliary outlet should be in line with job requirements and PEC			

<input type="checkbox"/> Follows schedule of work in <i>installing lighting fixture and auxiliary outlet</i> to ensure to be complete in an agreed time and to a quality standard and with a minimum waste			
<input type="checkbox"/> Seeks further instructions from a supervisor if unplanned events or conditions occur			
<input type="checkbox"/> Undertakes on-going checks of quality of work in installing lighting fixture and auxiliary outlet are done in accordance with instruction and requirements			
<input type="checkbox"/> Ensures final checks made to work conforms with instructions and requirements			
<input type="checkbox"/> Notifies supervisor upon completion of work			
<input type="checkbox"/> Cleans, checks and returns of tools, equipment and any surplus resources and materials to the storage in the accordance with establishes procedures			
<input type="checkbox"/> Cleans and makes work area safe			
<input type="checkbox"/> Interprets correctly work instructions*			
<input type="checkbox"/> Selects appropriate tools, equipment and materials for installation of electrical protective system*			
<input type="checkbox"/> Selects and use correct PPE*			
<input type="checkbox"/> Demonstrates correct procedure for installation of electrical protective devices*			
<input type="checkbox"/> Demonstrates correct procedure on installation of lighting fixture and auxiliary outlet*			
<input type="checkbox"/> Follows safety procedures*			
<input type="checkbox"/> Cleans worksite, tools and equipment*			
<input type="checkbox"/> Stores surplus materials*			
<input type="checkbox"/> Cleans and makes work area safe			

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ELECTRICAL INSTALLATION AND MAINTENANCE NC II**WRITTEN TEST****Direction: MULTIPLE CHOICE:**

Choices the best answer and write letters only on your answer sheet.

1. Why do electric service metering is normally installed outside the building or at the property line wall or post?
 - A. it is the regulations of the company supplying electricity
 - B. it is under the National Electrical Code
 - C. for ready access of a meter reader
 - D. all of the above
2. A common type of service wire installed by electric power supply companies for industrial, commercial, and residential houses?
 - A. service meter
 - C. overhead service
 - B. service entrance
 - D. underground
3. A pocket sized tool used to test the line wire or circuit if there is current in it?
 - A. test light
 - C. wire gauge
 - B. pull-push rule
 - D. fish tape
4. What part of an electric meter were kilowatt hour meter is attached or inserted?
 - A. base
 - C. switch
 - B. panel board
 - D. safety box
5. Which of the following is not a part of an overhead service entrance?
 - A. service meter
 - C. service cap/head
 - B. service drop
 - D. service center
6. What part of service entrance is use to protect the wire and the electric meter from entering rain water to conduit pipe?
 - A. service meter
 - C. service cap/head
 - B. service conduit
 - D. service loop
7. Which of the following is included as a material use in the installation of service meter?
 - A. grounding rod
 - C. electrical metallic tubing
 - B. rigid metallic tubing
 - D. all of the above
8. Why grounding is very important in any installation of electrical system?
 - A. to fix permanently to a zero voltages
 - C. to prevent single grounds from being unnoticed
 - B. to protect against short circuit
 - D. all of the above
9. What is the common type of service entrance employed by the power companies supplying electricity in the Philippines?
 - A. overhead service entrance
 - C. three phase service entrance
 - B. underground service entrance
 - D. single phase service entrance

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10. It is a type of service entrance consist of a raceway (conduit) extending from the building to the property line where it is tap to main?
 A. overhead service entrance C. three phase service entrance B. underground service entrance D. single phase service entrance
- 11 Which of this size of wire is use as a service entrance conductor for a single family dwelling bungalow house?
 A. no. 8 awg C. no. 12 awg B. no. 10 awg D. no.14 awg
12. You are able to install single bulb controlled by single pole switch what would you able to use if you had a screws that has cross head?
 A. allen screw C. stubby screw driver
 B. flat screw driver D. philip screw driver
13. A pocket sized tool used to test the line wire or circuit if there is current in it?
 A. test light C. wire gauge
 B. pull-push rule D. fish tape
14. The National Electrical Code provides that the ampacity of the connected load shall not exceed of how many percent of the amperage capacity of conductor and the fuse?
 A. 60% C. 20 %
 B. 50% D. 80%
15. How many no. 14 wires that can inserted to 13 mm diameter of conduit pipe?
 A. 4 C. 2
 B. 3 D. 5
16. There are several factors involved in electrical wiring installation but the foremost consideration is?
 A. cost C. safety
 B. labor D. function
17. How many no. 10 wires that can inserted to 25 mm or one-inch diameter of conduit pipe?
 A. 9 C. 11
 B. 10 D. 12
18. What is the standard rating ampere for fuses and circuit breaker, if the non-continuous type of load is consumed of 12 amperes?
 A. 10 amperes C. 20 amperes

B.

15 amperes

D. 30 amperes

19. In a electrical plan, if you intend to make a line diagram what is the symbol of buzzer?



A.

C.



B.

D.



20. In a electrical plan, how would you represent the symbol of a bell using a single line diagram?



A.

C.



B.

D.



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SPECIFIC INSTRUCTION FOR THE CANDIDATE

Qualification	ELECTRICAL INSTALLATION & MAINTENANCE NC II
Unit of Competency	<ul style="list-style-type: none"> • Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems • Install Electrical Protective devices for distribution, power, lighting, auxiliary, lightning protection and grounding system • Install Wiring Devices of Floor and Wall Mounted Outlet Lighting Fixture/Switches and Auxiliary Outlets

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General Instruction:

- Given the necessary materials, tools and equipment, you are required to perform *Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems ; Install Electrical Protective devices for distribution, power, lighting, auxiliary, lightning protection and grounding system AND Install Wiring Devices of Floor and Wall Mounted Outlet Lighting Fixture/Switches and Auxiliary Outlets* in accordance with the STANDARDS OF YOUR QUALIFICATION within 8 HOURS.

Specific Instruction:

You should perform the following activities...

1. Prepare all the necessary tools and materials.
2. Draw the schematic diagram: Panel board with main circuit and four branches circuit (Lights, CO, FDAS and CCTV)
3. Do measurement on a ply board.
4. Mount all the materials and equipment base on the industry standard.
5. Perform wire termination in distribution, power, lighting, auxiliary, and grounding system.
6. Make a test for functionality of each branch circuit using of VOM or Continuity Lamp Tester.

Tools/Equipment/Materials:

- Pliers, Screwdrivers, Wire Stripper, Utility Knife, Pull push rule □ Multi-tester (VOM)

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- Panel board with 70 amps main and four (4) branch circuit
 - 20 amps, 2 pieces and 15 amps, 2 pieces
- Electrical Conduits
 - Flexible Non-Metallic
 - Rigid Metallic Conduit
 - Rigid Non-Metallic Conduit
 - PVC Trunking
- Residential Wiring
 - Junction / Utility boxes
 - Single switch ; 3way switches and 4way switch
 - Receptacle
 - SPO
 - GFCI
- Fire Detection Alarm System
 - Smoke Detector
 - Heat Detector
 - Fire Alarm Control Unit
 - Manual Call Point
 - Bell
- Closed Circuit Television (CCTV)
 - Digital Video Recorder (DVR
 - Dome Type Camera w/supplies
 - Bullet Type Camera w/supplies
 - Monitor

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RATING SHEET FOR DEMONSTRATION

Trainee's Name:	
Trainer's Name:	
Qualification:	ELECTRICAL INSTALLATION & MAINTENANCE NC II

Unit of competencies:	<ul style="list-style-type: none"> • Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems • Install Electrical Protective devices for distribution, power, lighting, auxiliary, lightning protection and grounding system • Install Wiring Devices of Floor and Wall Mounted Outlet Lighting Fixture/Switches and Auxiliary Outlets 		
Date of assessment:			
Time of assessment:			
Instructions for demonstration			
<p>Given the necessary materials, tools, instrument and equipment, you are required to perform the following tasks in accordance with the set performance criteria, the given task will be done in 8 hours.</p>			
<p>Materials: Materials, tools, instrument and equipment</p>			
OBSERVATION	to show if evidence is demonstrated		
During the demonstration of skills, did the trainee...	Yes	No	N/A
Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems			
<input type="checkbox"/> Installed electrical metallic /non- metallic (PVC conduit) *			
<input type="checkbox"/> Installed wire ways and cable tray*			
<input type="checkbox"/> Installed auxiliary terminal cabinet and distribution panel*			
<input type="checkbox"/> Prepared for cable pulling and installation*			
<input type="checkbox"/> Performed wiring and cabling lay out*			

<input type="checkbox"/> Notified completion of work*			
Install Electrical Protective devices for distribution, power, lighting, auxiliary, lightning protection and grounding system			
<input type="checkbox"/> Correctly interpreted work instructions*			
<input type="checkbox"/> Selected appropriate tools, equipment and materials for installation of electrical protection system*			
<input type="checkbox"/> Selected and used correct PPE*			
<input type="checkbox"/> Demonstrated correct procedures on installation of electrical protective devices*			
<input type="checkbox"/> Demonstrated correct procedures on installation of lighting fixture and auxiliary outlet*			
<input type="checkbox"/> Followed safety procedures/protocol			
<input type="checkbox"/> Cleaned worksite, tools and equipment*			
<input type="checkbox"/> Stored surplus materials			
<input type="checkbox"/>			
Install Wiring Devices of Floor and Wall Mounted Outlet Lighting Fixture/Switches and Auxiliary Outlets			
<input type="checkbox"/> Correctly interpreted work instructions*			
<input type="checkbox"/> Selected appropriate tools, equipment and materials for installing wiring devices and lighting fixtures/switches and auxiliary outlet*			
<input type="checkbox"/> Selected and used correct PPE*			
<input type="checkbox"/> Demonstrated correct procedures for installation of wiring devices and lighting fixtures/switches*			
<input type="checkbox"/> Followed safety procedures/protocol*			
<input type="checkbox"/> Cleaned worksite, tools and equipment*			

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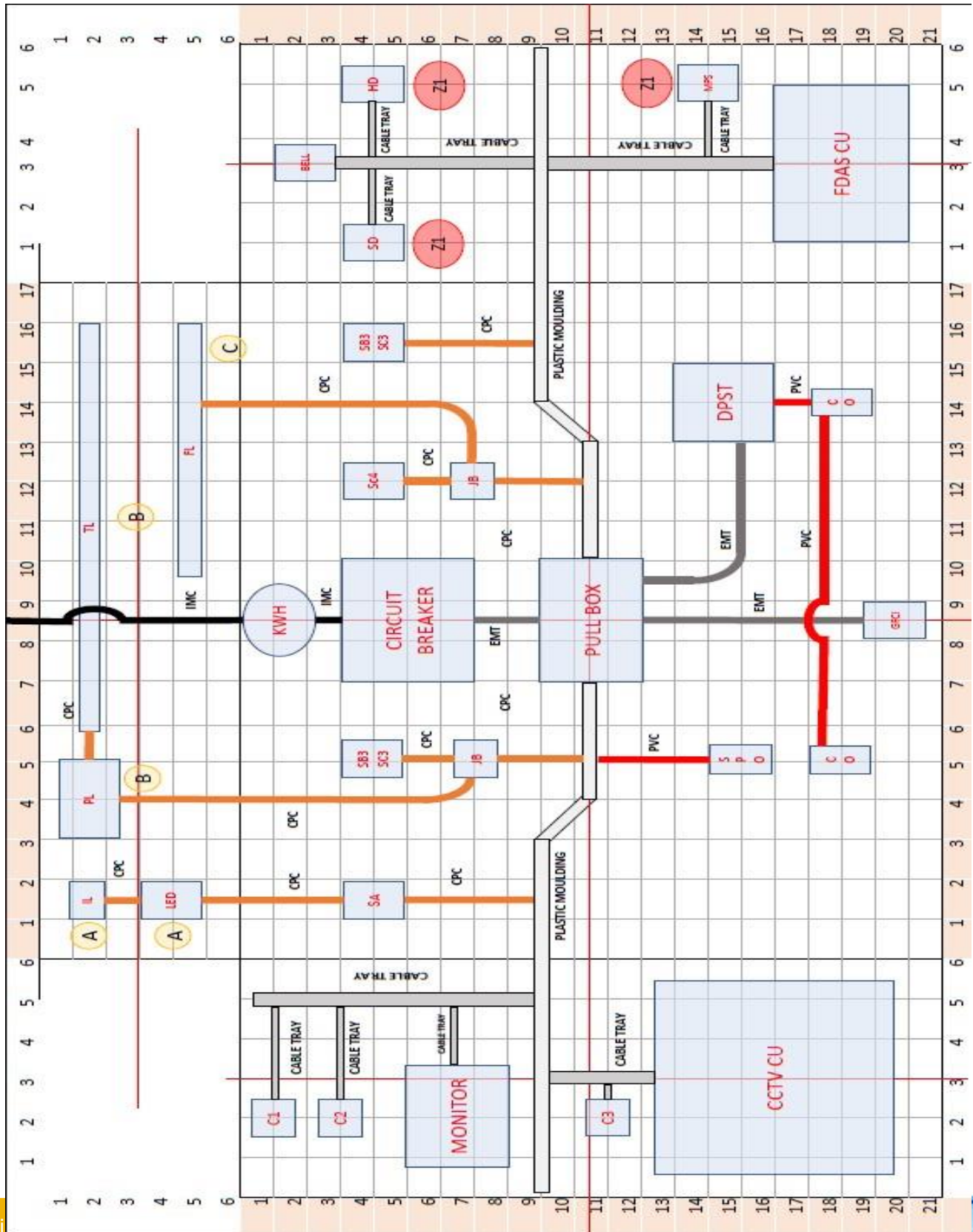
<input type="checkbox"/> Stored surplus materials*			
<p>The trainee's demonstration was:</p> <p>Satisfactory <input type="checkbox"/> Not Satisfactory <input type="checkbox"/></p>			

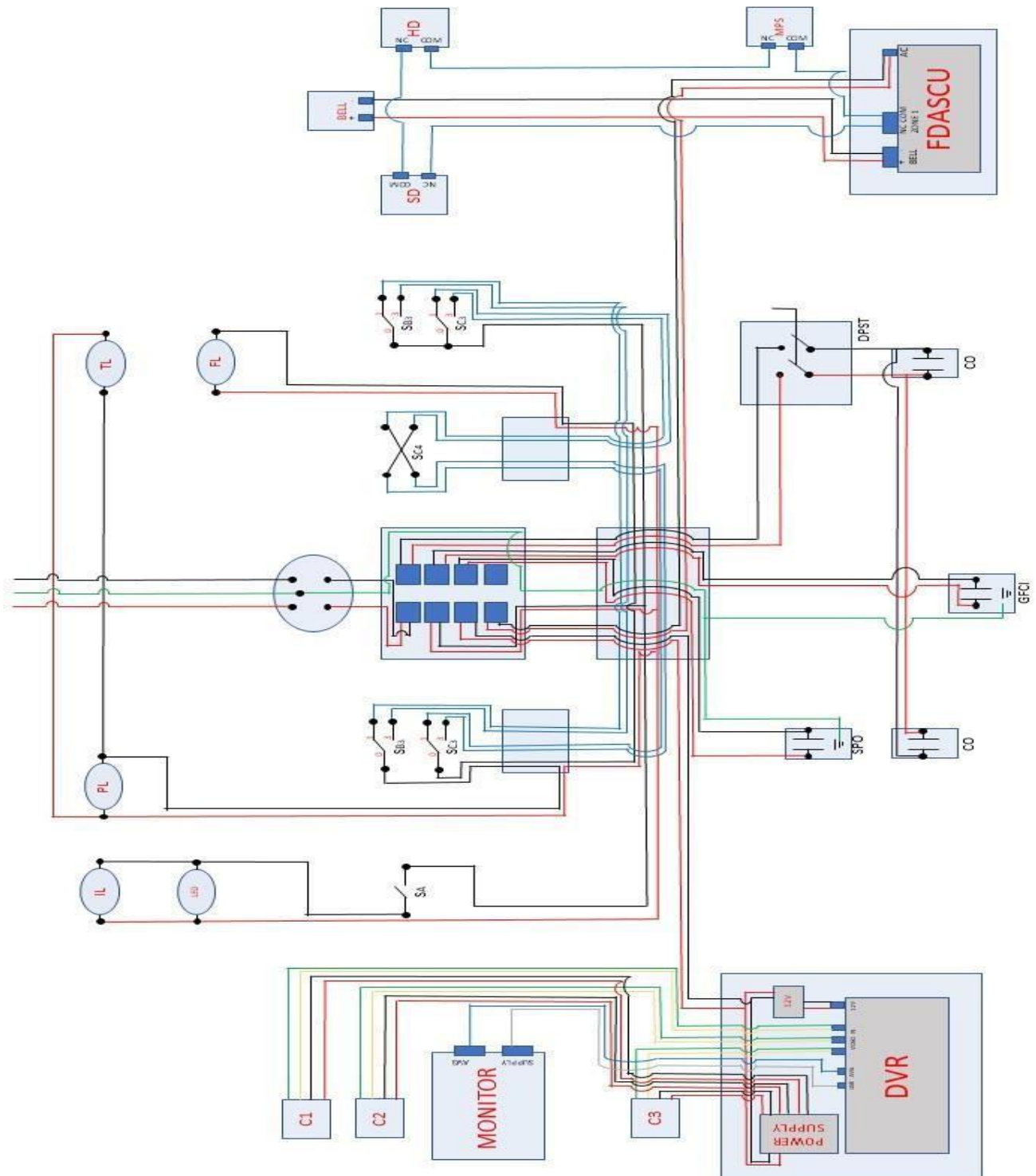
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PERFORMANCE CRITERIA CHECKLIST

OBSERVATION	Check () to show if evidence is demonstrated		
	Yes	No	N/A
During the demonstration of skills, the candidate:			
<input type="checkbox"/> Identified and selected electrical power and hydraulic tools in line with job specification*			
<input type="checkbox"/> Read and interpreted drawings correctly based on job requirements			
<input type="checkbox"/> Determined correct quantities of conduit and accessories as per job requirements			
<input type="checkbox"/> Assembled conduits and ensured that fittings are fully inserted and tightened as per job requirements*			
<input type="checkbox"/> Bent conduits with bends not exceeding 90° as per job requirements			
<input type="checkbox"/> Threaded conduit in line with job requirements			
<input type="checkbox"/> Installed electrical metallic conduits*			
<input type="checkbox"/> Installed wire ways and cable trays as per job requirements*			
<input type="checkbox"/> Performed correct procedures for installation of wiring devices*			
<input type="checkbox"/> Performed correct procedures for installation of electrical protection system in line with job requirements and PEC*			
<input type="checkbox"/> Performed correct procedures for installation of lighting fixtures in line with job requirements*			
<input type="checkbox"/> Followed safety procedures in line with SOP*			
<input type="checkbox"/> Made final checks to ensure that work conformed with instructions and job requirements			
<input type="checkbox"/> Cleaned, checked and returned tools, equipment and any surplus materials to storage in accordance with SOP			
<input type="checkbox"/> Cleaned and made safe the work area according to OH&S regulations			

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The trainees underpinning knowledge was: <input type="checkbox"/>			
Satisfactory <input type="checkbox"/>		Not satisfactory	
The trainee's overall performance:			
Satisfactory <input type="checkbox"/>		Not satisfactory <input type="checkbox"/>	
Trainee's Signature		Date	
Trainer's signature:		Date:	

RATING SHEET FOR ORAL QUESTIONING

Trainee's name:																		
Qualification:																		
ELECTRICAL INSTALLATION & MAINTENANCE NC II																		
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Unit of competencies:		Satisfactory response																
		<table border="1"> <thead> <tr> <th rowspan="2">Oral/Interview Questions</th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Names at least three types of conduits?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Why do we need to wear proper personal protective equipment?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> Name at least three type PPE?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> What is the meaning of PEC?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Oral/Interview Questions	Yes	No	Performing roughing-in activities, wiring and cabling works for single-phase distribution, power, lighting and auxiliary systems			<input type="checkbox"/> Names at least three types of conduits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Why do we need to wear proper personal protective equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Name at least three type PPE?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> What is the meaning of PEC?
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Install Electrical Protective devices for distribution, power, lighting, auxiliary, lightning protection and grounding system

<input type="checkbox"/> Name at least three kind of hand tool?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> What are the tools needed in installing protective device?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> What are the tools needed in installing pipe and fitting?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> What will you do if there's a short circuit happened in your house?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> What will happen if the circuit breaker trip down?	<input type="checkbox"/>	<input type="checkbox"/>

Install Wiring Devices of Floor and Wall Mounted Outlet Lighting Fixture/Switches and Auxiliary Outlets

<input type="checkbox"/> Name at least two components of FDAS?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> In Philippine Electrical Code (PEC) what is the number of wire use in lighting?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> What is the advantage of using digital multi-tester?	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> The protective device can monitor 24 hours	<input type="checkbox"/>	<input type="checkbox"/>

The trainees underpinning knowledge was: ☐

Satisfactory ☐

Not satisfactory

The trainee's overall performance:

Satisfactory ☐

Not satisfactory ☐

Trainee's Signature

Date

Trainer's signature:

Date:

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