

INDUSTRIAL ELECTRICITY

Assessment Package

National Vocational
Certificate Level 2

Version 1 - December 2014

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Government of Pakistan

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Document Version

December, 2014
Islamabad, Pakistan

INDUSTRIAL ELECTRICITY

Assessment Package

National Vocational
Certificate Level 2

Version 1 - December 2014



ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification

Industrial Electrician

CS Code:

Level: 2

Credit: 26

Version: 1

PERFORM PREVENTIVE MAINTENANCE AS PART OF ELECTRICAL OPERATIONS

CONTENTS

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgment Guide
4. List of required tools/equipment, material and context of assessment

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor's Name

Assessor's Code

Assessor's Signature

Date

DD		MM		YYYY					

CANDIDATE DETAILS

Candidate's Name

First Name

Last Name

Father's Name

Institute Name and District

CNIC/BFORM #

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Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate's Consent

I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate's Signature

ASSESSMENT RESULTS SUMMARY FORM

You can use this coversheet as an *Assessment Results Summary Form*. Simply post a photocopy of this completed coversheet to **NAVTTTC**

NAVTTTC OFFICE ONLY

1. DATE
FORM
RECEIVED:

DD		MM		YYYY					

2. DATE ENTERED INTO
DATABASE:

DD		MM		YYYY					

1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: PERFORM PREVENTIVE MAINTENANCE AS PART OF ELECTRICAL OPERATIONS	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Perform preventive maintenance as part of electrical operations. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> N/A 		

2

CANDIDATE ASSESSMENT

Candidate's Name..... Father's Name

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following tasks within **one hour** timeframe:

- Carry out the preventive maintenance of three phase motor starter and controller

Important Note: The following general performance criteria will be followed and performed in all the tasks (where applicable by the candidate in order to meet this standard :

- Follow precautionary procedures as per requirements of the given tasks
- Select, use and maintain equipment/ tools as per requirement of the task
- Report to supervisor in case of any emergency after taking necessary actions
- Complete the work by following sequence of the operations
- Perform task(s) within standard timeframe

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of performing preventive maintenance as part of electrical operations under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Carry out the preventive maintenance of three phase motor starter and controller <ul style="list-style-type: none"> ✓ Interpret layout/circuit diagram of three phase motor starter and controller (Annexure-1) ✓ Measure and record the voltage and current of three phase motor starter and controller with Multi meter ✓ Check the working of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller ✓ Clean non-working Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller ✓ Test the working of three phase motor starter and controller after repair/cleaning/replacement of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay • General Performance Criteria <ul style="list-style-type: none"> ✓ Follow precautionary procedures as per requirements of the given tasks ✓ Select, use and maintain equipment/ tools as per requirement of the task ✓ Report to supervisor in case of any emergency after taking necessary actions ✓ Complete the work by following sequence of the operations ✓ Perform task(s) within standard timeframe
2. Other requirements	<ul style="list-style-type: none"> • N/A
3. Answer any questions your assessor may have during the practical assessment	My answers to questions are correct and demonstrate my understanding of the topics and their application.

3

ASSESSOR JUDGEMENT GUIDE

Candidate's Name Father's Name.....

INSTRUCTIONS FOR ASSESSOR

This section contains minimum evidence requirements. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Complete practical task of performing preventive maintenance as part of electrical operations under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Carry out the preventive maintenance of three phase motor starter and controller	Interpreted layout/circuit diagram of three phase motor starter and controller (Annexure-1)			
	Measured and recorded the voltage and current of three phase motor starter and controller with Multi meter			
	Checked the working of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller			
	Cleaned non-working Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller			
	Tested the working of three phase motor starter and controller after repair/cleaning/replacement of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay			
General Performance Criteria	Followed precautionary procedures as per requirements of the given tasks			
	Selected, used and maintained equipment/ tools as per requirement of the task			
	Reported to supervisor in case of any emergency after taking necessary actions			
	Completed the work by following sequence of the operations			
	Performed task(s) within standard timeframe			
2. Other requirements	N/A			

<p>3. Answer any questions the assessor may have during the practical assessment</p>	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</p>			
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4

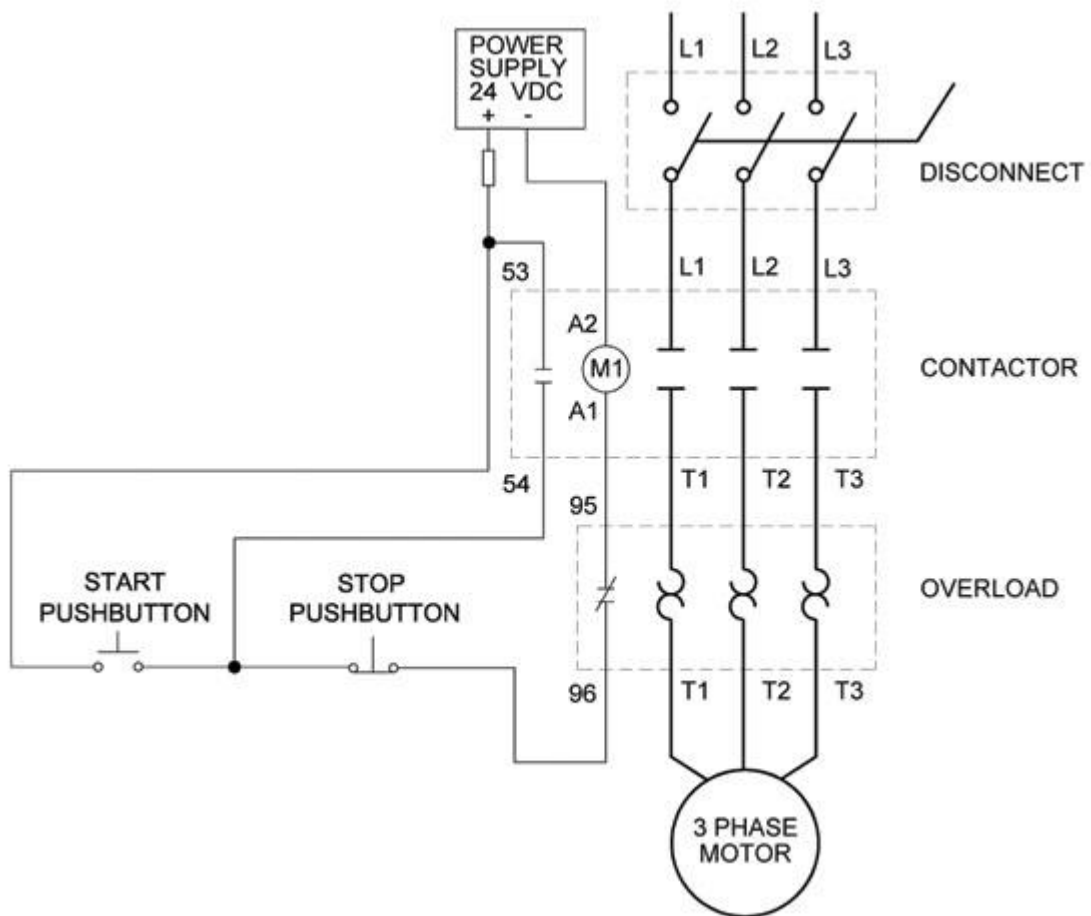
LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	This section contains information regarding; <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	This task will be performed in real time environment.

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Tool kits, chisel, hammer, mallet	5
2	Drill machine, megger, bearing puller, pipe wrench	5
3	Clamp on meter, AVO meter, cable knife	5

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Ducts, PVC pipe, steel nails	As per requirement
2	Screws, insulation tape	As per requirement
3	Wiring cables, elbows junction boxes.	As per requirement

Annexure-1





ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification

Industrial Electrician

CS Code:

Level: 2

Credit: 27

Version: 1

PERFORM CORRECTIVE MAINTENANCE AS PART OF ELECTRICAL OPERATIONS

CONTENTS

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgment Guide
4. List of required tools/equipment, material and context of assessment

ASSESSMENT AND ASSESSOR DETAILS

Competent ☐ Not Yet Competent ☐

Assessment ☐ Re-Assessment ☐

Assessor's Name _____ Assessor's Code _____

Assessor's Signature _____ Date _____

DD		MM		YYYY					

CANDIDATE DETAILS

Candidate's Name _____
First Name Last Name

Father's Name _____

Institute Name and District _____

CNIC/BFORM #

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Registration Number issued by
Assessment Body _____

Gender

Male ☐ Female ☐ Transgender ☐

Candidate's Consent

I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate's Signature _____

ASSESSMENT RESULTS SUMMARY FORM

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2. DATE ENTERED INTO
DATABASE:

DD		MM		YYYY					

1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: PERFORM CORRECTIVE MAINTENANCE AS PART OF ELECTRICAL OPERATIONS	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Perform corrective maintenance as part of electrical operations. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> N/A 		

2

CANDIDATE ASSESSMENT

Candidate's Name..... Father's Name

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following tasks within **one and half hour** timeframe:

- Carry out the corrective maintenance of three phase motor

Important Note: The following general performance criteria will be followed and performed in all the tasks (where applicable by the candidate in order to meet this standard :

- Follow precautionary procedures as per requirements of the given tasks
- Select, use and maintain equipment/ tools as per requirement of the task
- Report to supervisor in case of any emergency after taking necessary actions
- Complete the work by following sequence of the operations
- Perform task(s) within standard timeframe

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of performing corrective maintenance as part of electrical operations under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Carry out the corrective maintenance of three phase motor <ul style="list-style-type: none"> ✓ Interpret layout/circuit diagram of three phase motor (Annexure-1) ✓ Check the main electric supply connections of three phase motor with multi meter ✓ Move the shaft of three phase motor and check the movement and sound of rotor and bearings of three phase motor ✓ Measure and record the voltage and current of three phase motor with Multi meter ✓ Check the working of rotor, shaft and bearings of three phase motor by turning the motor ON ✓ Clean/repair the damaged/non-working rotor and shaft of three phase motor ✓ Check and lubricate the bearings of three phase motor ✓ Replace the faulty bearings of three phase motor ✓ Re-assemble and test the working of three phase motor after repair/cleaning/replacement of shaft and bearings • General Performance Criteria <ul style="list-style-type: none"> ✓ Follow precautionary procedures as per requirements of the given tasks ✓ Select, use and maintain equipment/ tools as per requirement of the task ✓ Report to supervisor in case of any emergency after taking necessary actions ✓ Complete the work by following sequence of the operations ✓ Perform task(s) within standard timeframe
2. Other requirements	<ul style="list-style-type: none"> • N/A
3. Answer any questions your assessor may have during the practical assessment	My answers to questions are correct and demonstrate my understanding of the topics and their application.

3

ASSESSOR JUDGEMENT GUIDE

Candidate's Name Father's Name.....

INSTRUCTIONS FOR ASSESSOR

This section contains minimum evidence requirements. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Complete practical task of performing corrective maintenance as part of electrical operations under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Carry out the corrective maintenance of three phase motor	Interpreted layout/circuit diagram of three phase motor (Annexure-1)			
	Checked the main electric supply connections of three phase motor with multi meter			
	Moved the shaft of three phase motor and checked the movement and sound of rotor and bearings of three phase motor			
	Measured and recorded the voltage and current of three phase motor with Multi meter			
	Checked the working of rotor, shaft and bearings of three phase motor by turning the motor ON			
	Cleaned/repared the damaged/non-working rotor and shaft of three phase motor			
	Checked and lubricated the bearings of three phase motor			
	Replaced the faulty bearings of three phase motor			
	Re-assembled and tested the working of three phase motor after repair/cleaning/replacement of shaft and bearings			
General Performance Criteria	Followed precautionary procedures as per requirements of the given tasks			
	Selected, used and maintained equipment/ tools as per requirement of the task			
	Reported to supervisor in case of any emergency after taking necessary actions			
	Completed the work by following sequence of the operations			
	Performed task(s) within standard timeframe			
2. Other requirements	N/A			

<p>3. Answer any questions the assessor may have during the practical assessment</p>	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</p>			
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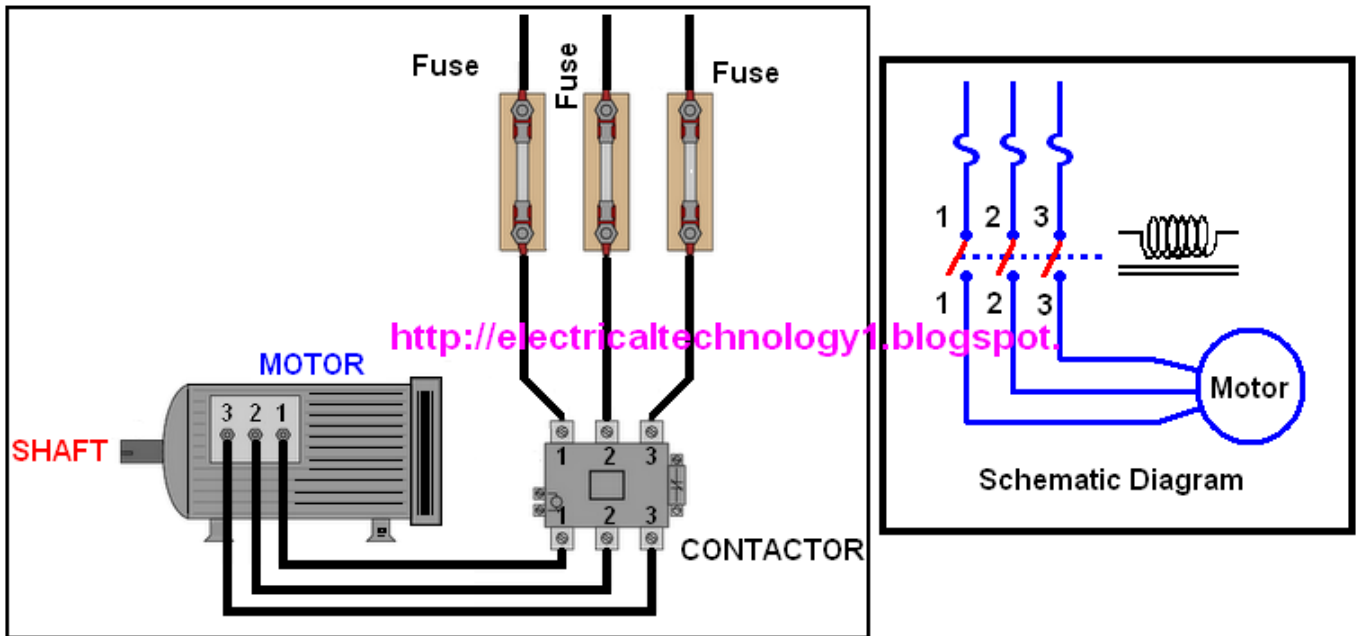
4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This task will be performed in real time environment.</p>

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Tool kit	5
2	Personal protective equipment	5
3	AVO meter, AC motor	5

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Grease, kerosene oil, sand paper	As per requirement
2	Connectors, connecting wires/sleeves	As per requirement
3	Insulation tape	As per requirement





ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification

Industrial Electrician

CS Code:

Level: 2

Credit: 40

Version: 1

INSTALL THREE PHASE WIRING

CONTENTS

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgment Guide
4. List of required tools/equipment, material and context of assessment

ASSESSMENT AND ASSESSOR DETAILS

Competent ☐ Not Yet Competent ☐

Assessment ☐ Re-Assessment ☐

Assessor's Name _____ Assessor's Code _____

Assessor's Signature _____ Date _____

DD		MM		YYYY					

CANDIDATE DETAILS

Candidate's Name _____
First Name Last Name

Father's Name _____

Institute Name and District _____

CNIC/BFORM #

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Registration Number issued by
Assessment Body _____

Gender

Male ☐ Female ☐ Transgender ☐

Candidate's Consent

I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate's Signature _____

ASSESSMENT RESULTS SUMMARY FORM

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NAVTTTC OFFICE ONLY

1. DATE
FORM
RECEIVED:

DD		MM		YYYY					

2. DATE ENTERED INTO
DATABASE:

DD		MM		YYYY					

1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL THREE PHASE WIRING	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Install and check three phase wiring. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> N/A 		

2

CANDIDATE ASSESSMENT

Candidate's Name..... Father's Name

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following tasks within **one hour** timeframe:

- Install three phase wiring on wooden board.

Important Note: The following general performance criteria will be followed and performed in all the tasks (where applicable by the candidate in order to meet this standard :

- Follow precautionary procedures as per requirements of the given tasks
- Select, use and maintain equipment/ tools as per requirement of the task
- Report to supervisor in case of any emergency after taking necessary actions
- Complete the work by following sequence of the operations
- Perform task(s) within standard timeframe

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of installing three phase wiring under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Install three phase wiring on wooden board <ul style="list-style-type: none"> ✓ Interpret layout diagram of three phase wiring on wooden board (Annexure-1) ✓ Measure the distance with measuring tape of electrical load to connection points on wooden board for three phase wiring ✓ Estimate the electrical wiring material for three phase wiring on wooden board ✓ Mark points on wooden board for installation of three phase wiring ✓ Lay down PVC pipe on wooden board for three phase wiring ✓ Pull in the electrical power cables in PVC pipes on wooden board for three phase wiring ✓ Make and check the connections of electrical power cables on wooden board for three phase wiring ✓ Carry out the continuity test and insulation test with the help of Megger in three phase wiring on wooden board ✓ Connect electrical load and switch ON the three phase wiring on wooden board for final inspection • General Performance Criteria <ul style="list-style-type: none"> ✓ Follow precautionary procedures as per requirements of the given tasks ✓ Select, use and maintain equipment/ tools as per requirement of the task ✓ Report to supervisor in case of any emergency after taking necessary actions ✓ Complete the work by following sequence of the operations • Perform task(s) within standard timeframe
2. Other requirements	<ul style="list-style-type: none"> • N/A
3. Answer any questions your assessor may have during the practical assessment	My answers to questions are correct and demonstrate my understanding of the topics and their application.

3

ASSESSOR JUDGEMENT GUIDE

Candidate's Name Father's Name.....

INSTRUCTIONS FOR ASSESSOR

This section contains minimum evidence requirements. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Complete practical task of installing three phase wiring under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Install three phase wiring on wooden board	Interpreted layout diagram of three phase wiring on wooden board (Annexure-1)			
	Measured the distance with measuring tape of electrical load to connection points on wooden board for three phase wiring			
	Estimated the electrical wiring material for three phase wiring on wooden board			
	Marked points on wooden board for installation of three phase wiring			
	Laid down PVC pipe on wooden board for three phase wiring			
	Pulled in the electrical power cables in PVC pipes on wooden board for three phase wiring			
	Made and checked the connections of electrical power cables on wooden board for three phase wiring			
	Carried out the continuity test and insulation test with the help of Meggar in three phase wiring on wooden board			
	Connected electrical load and switched ON the three phase wiring on wooden board for final inspection			
General Performance Criteria	Followed precautionary procedures as per requirements of the given tasks			
	Selected, used and maintained equipment/ tools as per requirement of the task			
	Reported to supervisor in case of any emergency after taking necessary actions			
	Completed the work by following sequence of the operations			
	Performed task(s) within standard timeframe			
2. Other requirements	N/A			

<p>3. Answer any questions the assessor may have during the practical assessment</p>	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</p>			
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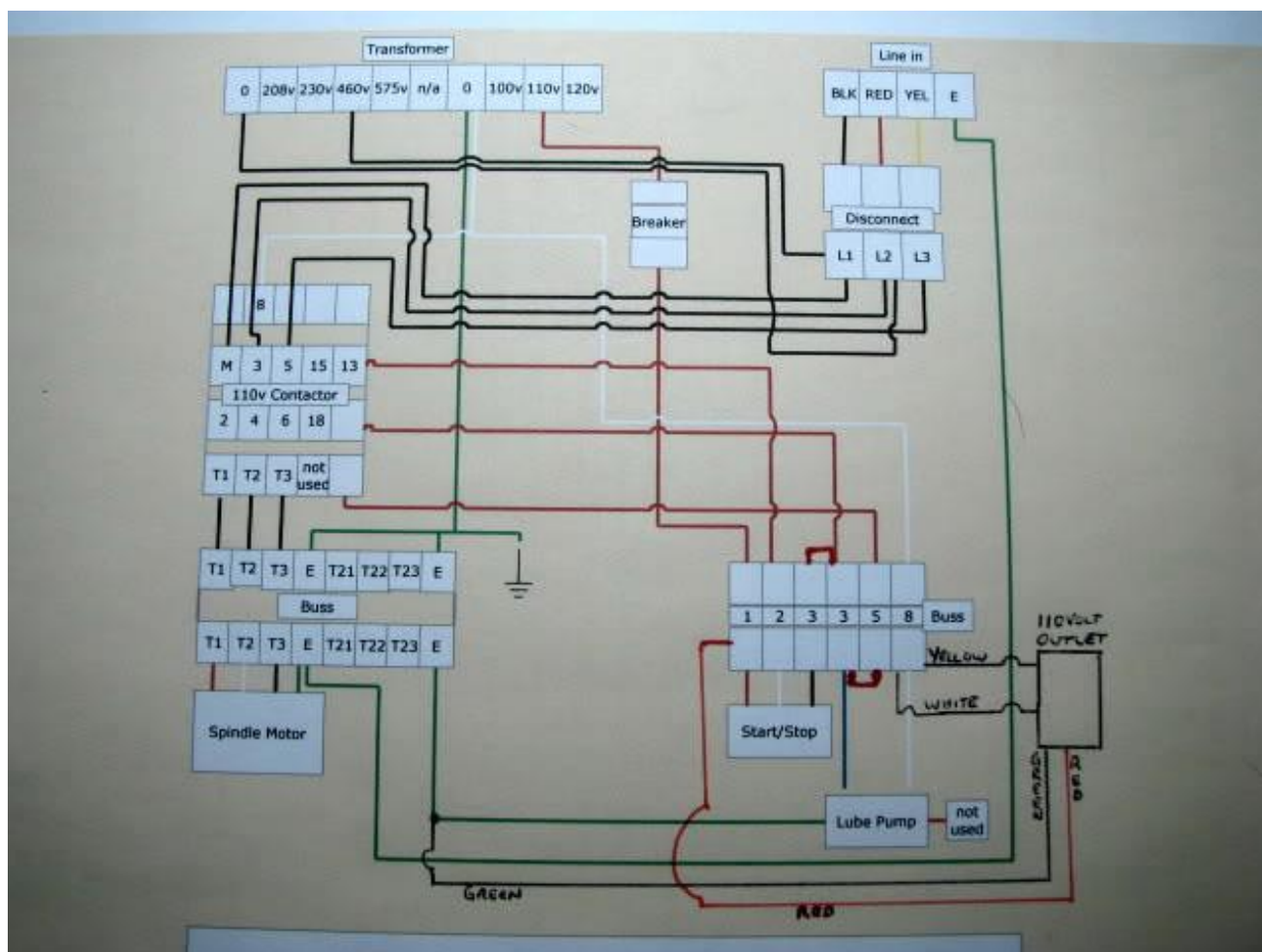
4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This task will be performed in real time environment.</p>

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Tool kits, chisel, hammer	5
2	Drill machine, measuring tape, T-square, L-square	5
3	Clamp on meter, AVO meter, cable knife, cutter	5

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Ducts, PVC pipe, steel nails	As per requirement
2	Screws, insulation tape	As per requirement
3	Wiring cables, elbows junction boxes.	As per requirement



**ASSESSMENT
MATERIAL****EVIDENCE
GUIDE****Qualification**

Industrial Electrician

CS Code:**Level: 2****Credit: 53****Version: 1****PERFORM DISTRIBUTION OF ELECTRICAL
SUPPLY****CONTENTS**

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgment Guide
4. List of required tools/equipment, material and context of assessment

**ASSESSMENT AND
ASSESSOR
DETAILS****Competent**☐**Not Yet Competent**☐**Assessment**☐**Re-Assessment**☐**Assessor's Name****Assessor's Code****Assessor's Signature****Date**

DD		MM		YYYY					

**CANDIDATE
DETAILS****Candidate's Name**

First Name

Last Name

Father's Name**Institute Name and District****CNIC/BFORM #**

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**Registration Number issued by
Assessment Body****Gender**

Male

☐

Female

☐

Transgender

☐**Candidate's Consent**

I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate's Signature**ASSESSMENT
RESULTS
SUMMARY FORM**You can use this coversheet as an *Assessment Results Summary Form*. Simply post a photocopy of this completed coversheet to **NAVTTCC****NAVTTCC OFFICE
ONLY****1. DATE
FORM
RECEIVED:**

DD		MM		YYYY					

**2. DATE ENTERED INTO
DATABASE:**

DD		MM		YYYY					

1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: PERFORM DISTRIBUTION OF ELECTRICAL SUPPLY	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Perform the distribution of electrical supply in industrial area. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> N/A 		

2

CANDIDATE ASSESSMENT

Candidate's Name..... Father's Name

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following tasks within **two hours** timeframe:

- Perform and check the distribution of electrical supply in the institute/workshop/room/factory

Important Note: The following general performance criteria will be followed and performed in all the tasks (where applicable by the candidate in order to meet this standard :

- Follow precautionary procedures as per requirements of the given tasks
- Select, use and maintain equipment/ tools as per requirement of the task
- Report to supervisor in case of any emergency after taking necessary actions
- Complete the work by following sequence of the operations
- Perform task(s) within standard timeframe

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of performing distribution of electrical supply under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Perform and check the distribution of electrical supply in the institute/workshop/room/factory <ul style="list-style-type: none"> ✓ Interpret layout diagram of distribution of electrical supply of institute/workshop/room/house/factory (Annexure-1) ✓ Prepare load schedule of distribution of electrical supply of institute/workshop/room/house/factory ✓ Distribute electrical power supply to institute/workshop/room/house/factory ✓ Measure the input and output voltages of distribution of electrical supply of institute/workshop/room/house/factory with the help of Multi-meter ✓ Calculate the voltage drop of distribution of electrical supply of institute/workshop/room/house/factory using formulae ✓ Recheck distribution of electrical supply of institute/workshop/room/house/factory with Multi meter and Clamp on meter. ✓ Reset the electrical load as per the load schedule of distribution of electrical supply of institute/workshop/room/house/factory • General Performance Criteria <ul style="list-style-type: none"> ✓ Follow precautionary procedures as per requirements of the given tasks ✓ Select, use and maintain equipment/ tools as per requirement of the task ✓ Report to supervisor in case of any emergency after taking necessary actions ✓ Complete the work by following sequence of the operations ✓ Perform task(s) within standard timeframe
2. Other requirements	<ul style="list-style-type: none"> • N/A
3. Answer any questions your assessor may have during the practical assessment	My answers to questions are correct and demonstrate my understanding of the topics and their application.

3

ASSESSOR JUDGEMENT GUIDE

Candidate's Name Father's Name.....

INSTRUCTIONS FOR ASSESSOR

This section contains minimum evidence requirements. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1 Complete practical task of performing distribution of electrical supply under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Perform and check the distribution of electrical supply in the institute/workshop/room/factory	Interpreted layout diagram of distribution of electrical supply of institute/workshop/room/house/factory (Annexure-1)			
	Prepared load schedule of distribution of electrical supply of institute/workshop/room/house/factory			
	Distributed electrical power supply to institute/workshop/room/house/factory			
	Measured the input and output voltages of distribution of electrical supply of institute/workshop/room/house/factory with the help of Multi-meter			
	Calculated the voltage drop of distribution of electrical supply of institute/workshop/room/house/factory using formulae			
	Rechecked distribution of electrical supply of institute/workshop/room/house/factory with Multi meter and Clamp on meter.			
	Reset the electrical load as per the load schedule of distribution of electrical supply of institute/workshop/room/house/factory			
General Performance Criteria	Followed precautionary procedures as per requirements of the given tasks			
	Selected, used and maintained equipment/ tools as per requirement of the task			
	Reported to supervisor in case of any emergency after taking necessary actions			
	Completed the work by following sequence of the operations			
	Performed task(s) within standard timeframe			
2. Other requirements	N/A			

<p>3. Answer any questions the assessor may have during the practical assessment</p>	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</p>			
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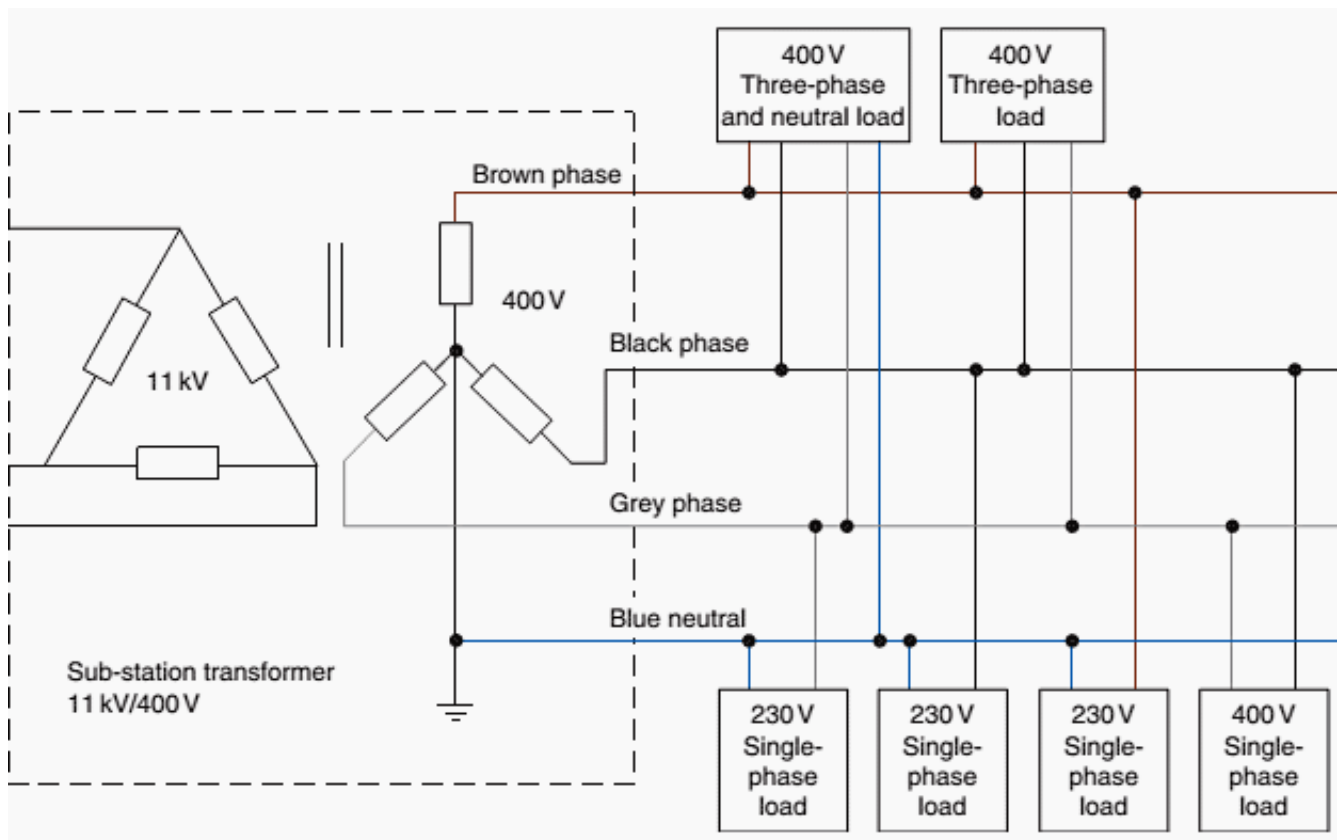
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LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	<p>This task will be performed in real time environment.</p>

2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Tool kits, chisel, hammer	5
2	Drill machine, measuring tape, T-square, L-square	5
3	Clamp on meter, AVO meter, cable knife, cutter	5

3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Ducts, PVC pipe, steel nails	As per requirement
2	Screws, insulation tape	As per requirement
3	Wiring cables, elbows junction boxes.	As per requirement





ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification

Industrial Electrician

CS Code:

Level: 2

Credit: 160

Version: 1

INDUSTRIAL ELECTRICIAN

CONTENTS

1. Assessment Summary and Record
2. Candidate Assessment
3. Assessor Judgment Guide
4. List of required tools/equipment, material and context of assessment

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor's Name

Assessor's Code

Assessor's Signature

Date

DD	MM							YYYY	

CANDIDATE DETAILS

Candidate's Name

First Name

Last Name

Father's Name

Institute Name and District

CNIC/BFORM #

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Registration Number issued by Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate's Consent

I agree to the time and date of the assessment and am aware of the requirements of the assessment. I fully understand my rights of appeal.

Candidate's Signature

ASSESSMENT RESULTS SUMMARY FORM

You can use this coversheet as an *Assessment Results Summary Form*. Simply post a photocopy of this completed coversheet to **NAVTTTC**

NAVTTTC OFFICE ONLY

1. DATE FORM RECEIVED:

DD	MM							YYYY	

2. DATE ENTERED INTO DATABASE:

DD	MM							YYYY	

1

ASSESSMENT SUMMARY & RECORD

ACTIVITY	METHOD				DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	PORTFOLIO	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF QUALIFICATION: INDUSTRIAL ELECTRICIAN	COMPETENT	NOT YET COMPETENT
Practical Skill Demonstration				✓	<ul style="list-style-type: none"> Perform services as an Industrial Electrician. 		
Knowledge Assessment	✓	✓			<ul style="list-style-type: none"> Answer all questions your Assessor may have during the practical assessment. 		
Other Requirements			✓		<ul style="list-style-type: none"> N/A 		

Candidate's Name..... Father's Name

ALL WORK ASSESSED IN THIS COMPETENCY STANDARD MUST BE YOUR OWN WORK.

GUIDANCE TO CANDIDATE

To meet this standard you are required to complete the following tasks within **five hours** timeframe:

- Carry out the preventive maintenance of three phase motor starter and controller.
- Carry out the corrective maintenance of three phase motor.
- Install three phase wiring on wooden board.
- Perform and check the distribution of electrical supply in the institute/workshop/room/factory

Important Note: The following general performance criteria will be followed and performed in all the tasks (where applicable by the candidate in order to meet this standard :

- Follow precautionary procedures as per requirements of the given tasks
- Select, use and maintain equipment/ tools as per requirement of the task
- Report to supervisor in case of any emergency after taking necessary actions
- Complete the work by following sequence of the operations
- Perform task(s) within standard timeframe

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of Industrial Electrician under observation by an assessor	<p>During a practical assessment, under observation by an assessor, I will correctly :</p> <ul style="list-style-type: none"> • Carry out the preventive maintenance of three phase motor starter and controller <ul style="list-style-type: none"> ✓ Interpret layout/circuit diagram of three phase motor starter and controller (Annexure-1) ✓ Measure and record the voltage and current of three phase motor starter and controller with Multi meter ✓ Check the working of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller ✓ Clean non-working Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller ✓ Test the working of three phase motor starter and controller after repair/cleaning/replacement of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay • Carry out the corrective maintenance of three phase motor <ul style="list-style-type: none"> ✓ Interpret layout/circuit diagram of three phase motor (Annexure-1) ✓ Check the main electric supply connections of three phase motor with multi meter ✓ Move the shaft of three phase motor and check the movement and sound of rotor and bearings of three phase motor ✓ Measure and record the voltage and current of three phase motor with Multi meter ✓ Check the working of rotor, shaft and bearings of three phase motor by turning the motor ON ✓ Clean/repair the damaged/non-working rotor and shaft of three phase motor ✓ Check and lubricate the bearings of three phase motor ✓ Replace the faulty bearings of three phase motor ✓ Re-assemble and test the working of three phase motor after repair/cleaning/replacement of shaft and bearings • Install three phase wiring on wooden board <ul style="list-style-type: none"> ✓ Interpret layout diagram of three phase wiring on wooden board (Annexure-1) ✓ Measure the distance with measuring tape of electrical load to connection points on wooden board for three phase wiring ✓ Estimate the electrical wiring material for three phase wiring on wooden board ✓ Mark points on wooden board for installation of three phase wiring ✓ Lay down PVC pipe on wooden board for three phase wiring ✓ Pull in the electrical power cables in PVC pipes on wooden board for three phase wiring ✓ Make and check the connections of electrical power cables on wooden board for three phase wiring

	<ul style="list-style-type: none"> ✓ Carry out the continuity test and insulation test with the help of Megger in three phase wiring on wooden board ✓ Connect electrical load and switch ON the three phase wiring on wooden board for final inspection • Perform and check the distribution of electrical supply in the institute/workshop/room/factory <ul style="list-style-type: none"> ✓ Interpret layout diagram of distribution of electrical supply of institute/workshop/room/house/factory (Annexure-1) ✓ Prepare load schedule of distribution of electrical supply of institute/workshop/room/house/factory ✓ Distribute electrical power supply to institute/workshop/room/house/factory ✓ Measure the input and output voltages of distribution of electrical supply of institute/workshop/room/house/factory with the help of Multi-meter ✓ Calculate the voltage drop of distribution of electrical supply of institute/workshop/room/house/factory using formulae ✓ Recheck distribution of electrical supply of institute/workshop/room/house/factory with Multi meter and Clamp on meter. ✓ Reset the electrical load as per the load schedule of distribution of electrical supply of institute/workshop/room/house/factory • General Performance Criteria <ul style="list-style-type: none"> ✓ Follow precautionary procedures as per requirements of the given tasks ✓ Select, use and maintain equipment/ tools as per requirement of the task ✓ Report to supervisor in case of any emergency after taking necessary actions ✓ Complete the work by following sequence of the operations ✓ Perform task(s) within standard timeframe
2. Other requirements	<ul style="list-style-type: none"> • N/A
3. Answer any questions your assessor may have during the practical assessment	My answers to questions are correct and demonstrate my understanding of the topics and their application.

Candidate's Name Father's Name.....

**INSTRUCTIONS
FOR
ASSESSOR**

This section contains minimum evidence requirements. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Complete practical task of Industrial Electrician under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Carry out the preventive maintenance of three phase motor starter and controller	Interpreted layout/circuit diagram of three phase motor starter and controller (Annexure-1)			
	Measured and recorded the voltage and current of three phase motor starter and controller with Multi meter			
	Checked the working of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller			
	Cleaned non-working Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay of three phase motor starter and controller			
	Tested the working of three phase motor starter and controller after repair/cleaning/replacement of Magnetic Contactor, Push Buttons (ON and OFF) and Overload Relay			
Carry out the corrective maintenance of three phase motor	Interpreted layout/circuit diagram of three phase motor (Annexure-1)			
	Checked the main electric supply connections of three phase motor with multi meter			
	Moved the shaft of three phase motor and checked the movement and sound of rotor and bearings of three phase motor			
	Measured and recorded the voltage and current of three phase motor with Multi meter			
	Checked the working of rotor, shaft and bearings of three phase motor by turning the motor ON			
	Cleaned/repared the damaged/non-working rotor and shaft of three phase motor			
	Checked and lubricated the bearings of three phase motor			
	Replaced the faulty bearings of three phase motor			
	Re-assembled and tested the working of three phase motor after repair/cleaning/replacement of shaft and bearings			
Install three phase wiring on wooden board	Interpreted layout diagram of three phase wiring on wooden board (Annexure-1)			
	Measured the distance with measuring tape of electrical load to connection points on wooden board for three phase wiring			
	Estimated the electrical wiring material for three phase wiring on wooden board			
	Marked points on wooden board for installation of three phase wiring			

	Laid down PVC pipe on wooden board for three phase wiring			
	Pulled in the electrical power cables in PVC pipes on wooden board for three phase wiring			
	Made and checked the connections of electrical power cables on wooden board for three phase wiring			
	Carried out the continuity test and insulation test with the help of Meggar in three phase wiring on wooden board			
	Connected electrical load and switched ON the three phase wiring on wooden board for final inspection			
Perform and check the distribution of electrical supply in the institute/workshop/room/factory	Interpreted layout diagram of distribution of electrical supply of institute/workshop/room/house/factory (Annexure-1)			
	Prepared load schedule of distribution of electrical supply of institute/workshop/room/house/factory			
	Distributed electrical power supply to institute/workshop/room/house/factory			
	Measured the input and output voltages of distribution of electrical supply of institute/workshop/room/house/factory with the help of Multi-meter			
	Calculated the voltage drop of distribution of electrical supply of institute/workshop/room/house/factory using formulae			
	Rechecked distribution of electrical supply of institute/workshop/room/house/factory with Multi meter and Clamp on meter.			
	Reset the electrical load as per the load schedule of distribution of electrical supply of institute/workshop/room/house/factory			
General Performance Criteria	Followed precautionary procedures as per requirements of the given tasks			
	Selected, used and maintained equipment/ tools as per requirement of the task			
	Reported to supervisor in case of any emergency after taking necessary actions			
	Completed the work by following sequence of the operations			
	Performed task(s) within standard timeframe			
2. Other requirements	N/A			

<p>3. Answer any questions the assessor may have during the practical assessment</p>	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</p>			
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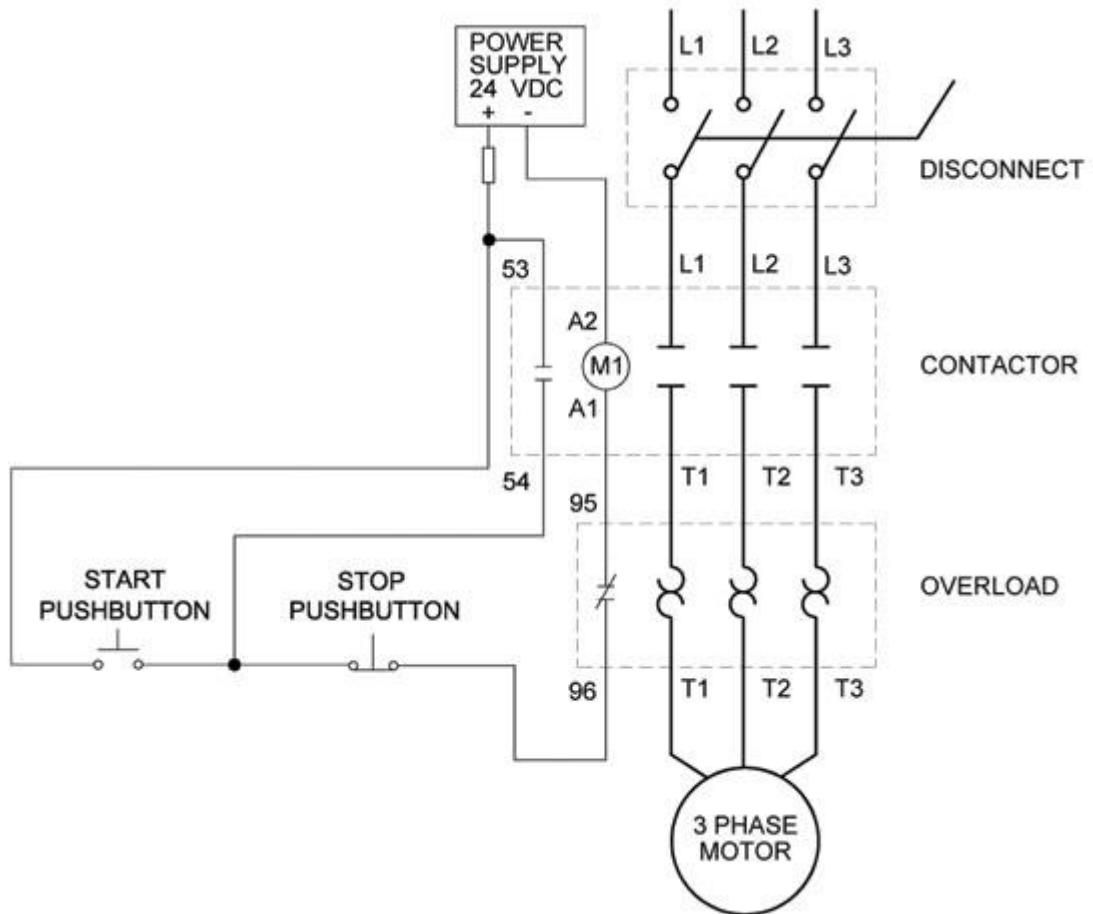
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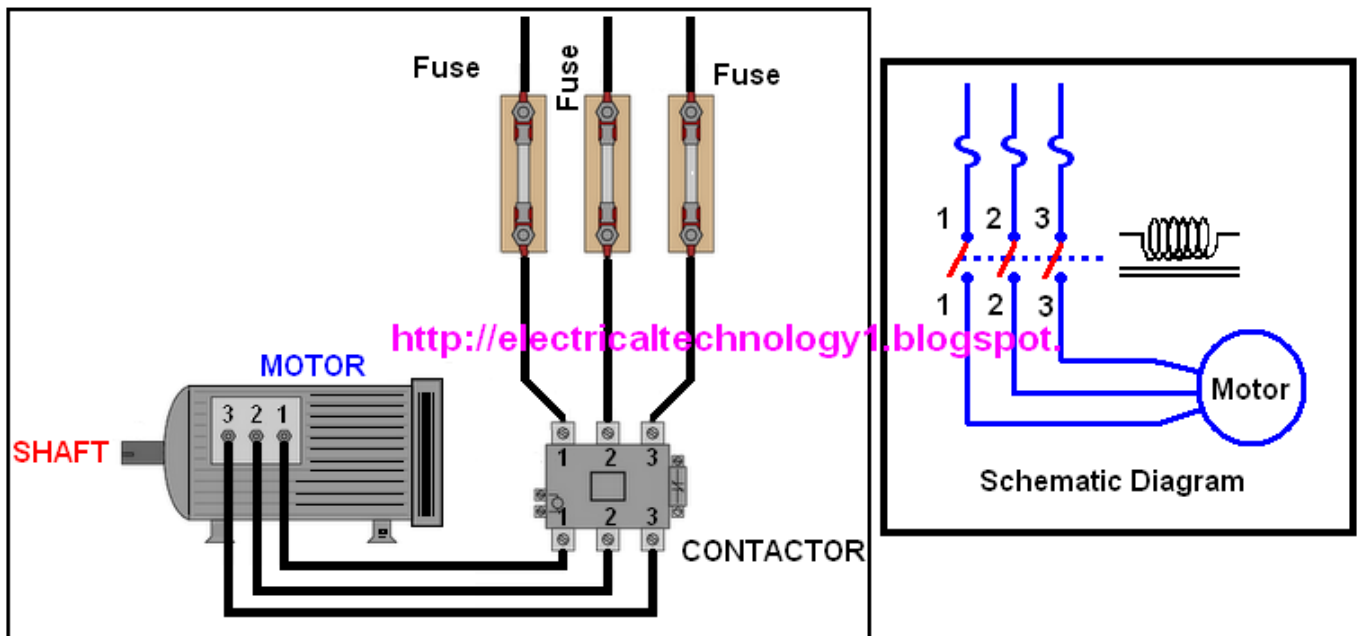
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INSTRUCTIONS	<p>This section contains information regarding;</p> <ul style="list-style-type: none"> Context of the assessment List of required tools and equipment. List of consumable items required during the service
1. Context of Assessment	This task will be performed in real time environment.

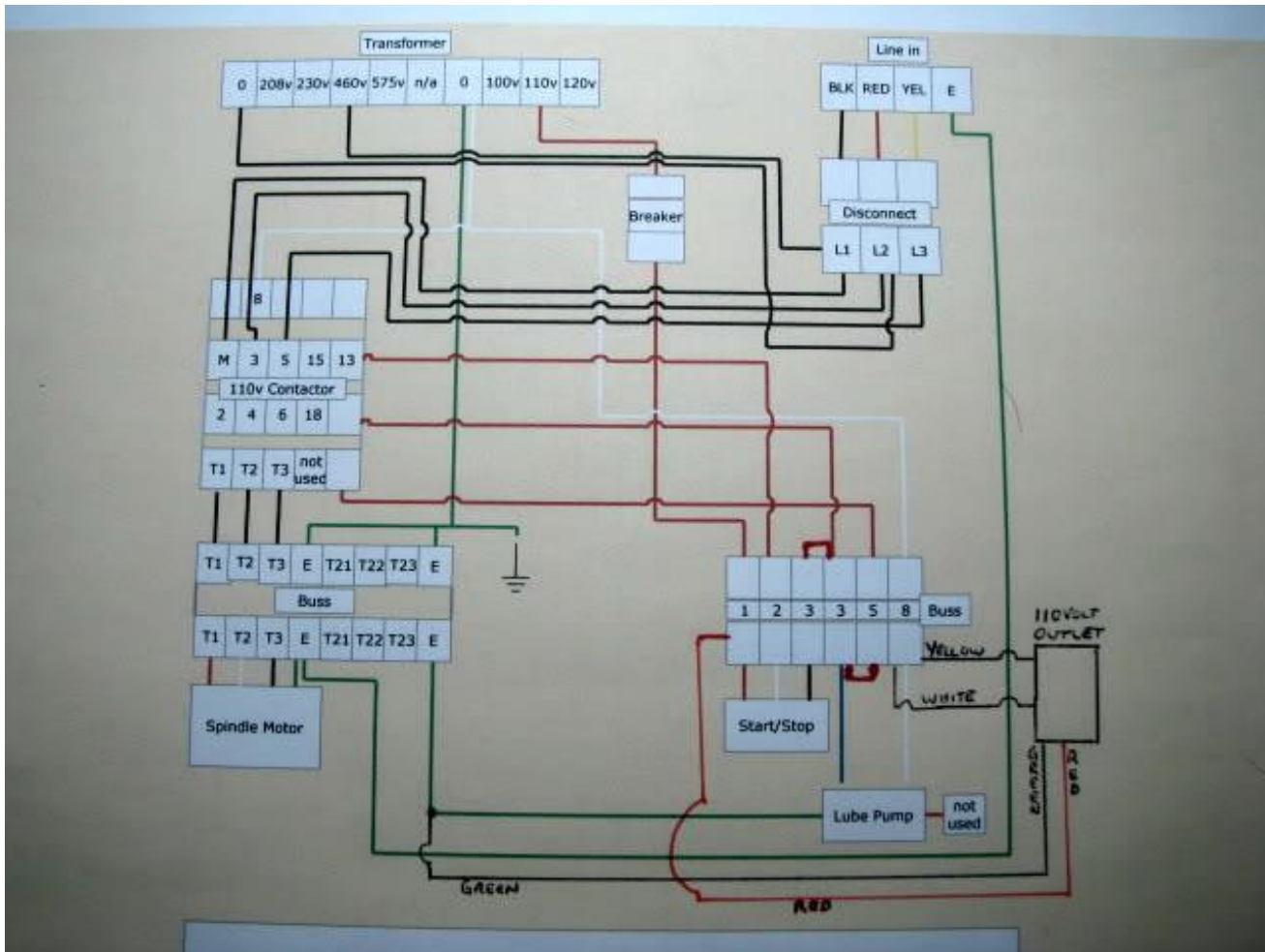
2. List of tools and equipment required (for five candidates)		
S. No	Items	Quantity
1	Tool kits, chisel, hammer, mallet	5
2	Drill machine, megger, bearing puller, pipe wrench	5
3	Clamp on meter, cable knife	5
4	Personal protective equipment	5
5	AVO meter, AC motor	5
6	Drill machine, measuring tape, T-square, L-square	5

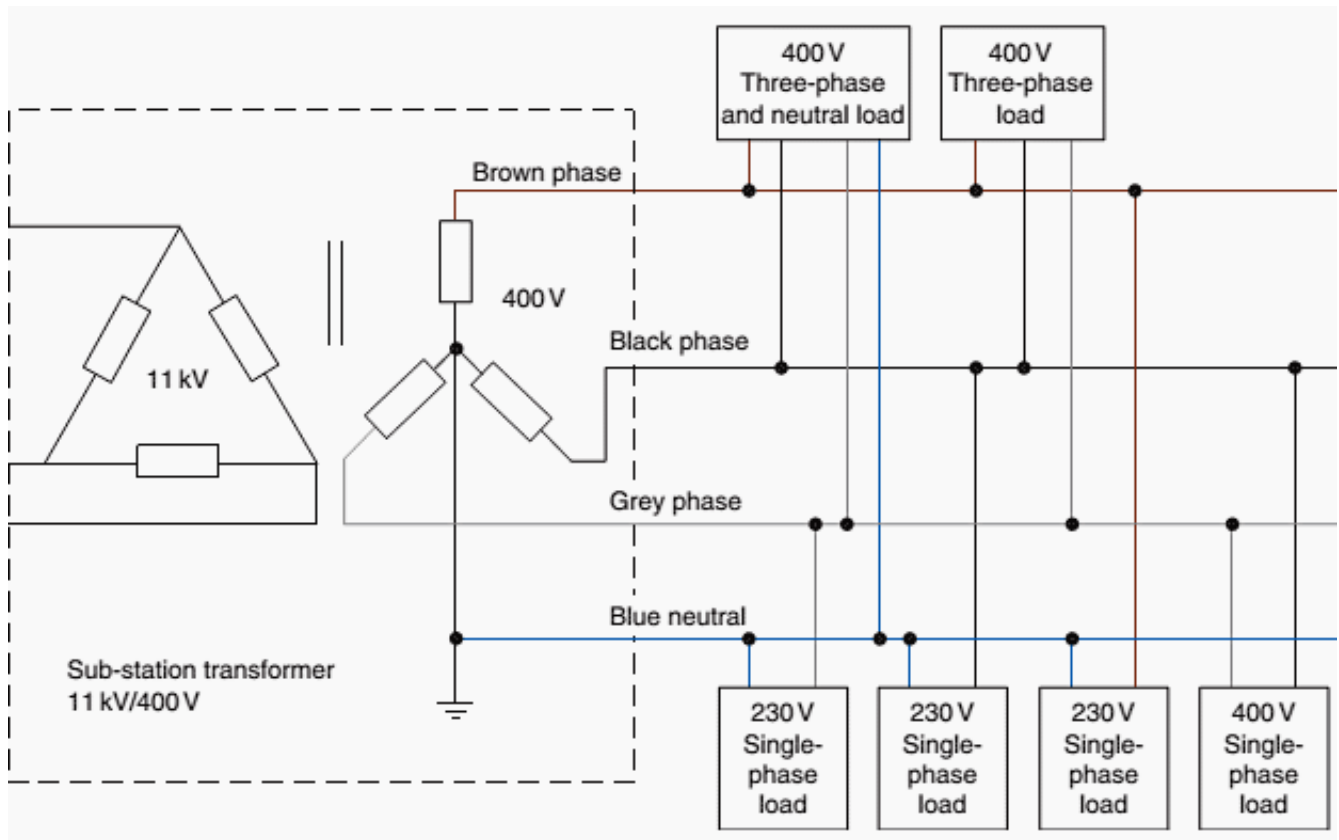
3. List of consumable items required (for five candidates)		
S. No	Items	Quantity
1	Ducts, PVC pipe, steel nails	As per requirement
2	Screws, insulation tape	As per requirement
3	Wiring cables, elbows junction boxes.	As per requirement
4	Grease, kerosene oil, sand paper	As per requirement
5	Connectors, connecting wires/sleeves	As per requirement
6	Insulation tape	As per requirement





Annexure-3







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