

GENERAL ELECTRICIAN

Assessment Package

National Vocational Certificate Level 2

Version 1 - July 2015

Published by

National Vocational and Technical Training Commission
Government of Pakistan

Headquarter

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible

Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Reform Support Programme, Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH

Layout & design

SAP Communications

Photo Credits

TVET Reform Support Programme

URL links

Responsibility for the content of external websites linked in this publication always lies with their respective publishers. TVET Reform Support Programme expressly dissociates itself from such content.

This document has been produced with the technical assistance of the TVET Reform Support Programme, which is funded by the European Union, the Embassy of the Kingdom of the Netherlands, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs)s and private sector organizations.

Document Version

July, 2015
Islamabad, Pakistan

GENERAL ELECTRICIAN

Assessment Package

National Vocational
Certificate Level 2

Version 1 - July 2015



ASSESSMENT
MATERIAL

EVIDENCE GUIDE

Qualification
General Electrician
Level: 2
Credit: 80
Version: 1

GENERAL ELECTRICIAN

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

Assessor Code

Assessor Signature

Date

DD	MM	YYYY					

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate 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 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 NAVTTC

NAVTTC OFFICE ONLY

1. DATE
FORM
RECEIVED:

DD	MM	YYYY					

2. DATE ENTERED INTO
DATABASE:

DD	MM	YYYY					

1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:				FATHER NAME:		
ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF QUALIFICATION: GENERAL ELECTRICIAN	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> Ensure Occupational Health and Safety Interpret electrical drawing of building for fixing PVC pipes Measure rooms and mark levels according to wiring plan Calculate load of electrical equipment and select cables Install electrical cables and wires Perform repair and maintenance of electrical equipment Develop professionalism 		
Knowledge Assessment		✓		<ul style="list-style-type: none"> Answer any questions your Assessor may have during the practical assessment 		
Other requirements	✓			<ul style="list-style-type: none"> Supply a completed requisition order signed by an issuing officer 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to perform the following within **4 hours** timeframe

- Interpret electrical drawing of building for fixing PVC pipes as per attached drawing
- Measure rooms and mark levels according to wiring plan
- Calculate load of electrical equipment and select cables
- Install electrical cables and wires as per drawing.
- Install the fixture as per drawings
- Perform repair and maintenance of electrical equipment
- Ensure Occupational Health and Safety
- Develop professionalism

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of installing, testing and repairing electrical systems and equipment under observation by an assessor	<p>During a practical assessment within set timeframe of four hours, under observation by an assessor, I will correctly:</p> <ul style="list-style-type: none"> • Interpret electrical drawing of building for fixing PVC pipes as per attached drawing : <ul style="list-style-type: none"> ✓ Select PVC pipes as per drawing ✓ Measure quantity of PVC pipes as per drawing • Measure Rooms and mark levels according to wiring plan <ul style="list-style-type: none"> ✓ Calculate the rooms for load and circuit ✓ Mark the level of wiring and fixture • Calculate load of electrical equipment and select cables <ul style="list-style-type: none"> ✓ Calculate the load for development of circuits ✓ Select the Cables for each circuit ✓ Select the fixture for each room ✓ Make BOQ for estimation ✓ Generate the Material requisition to draw the material ✓ Check the received material specification and quantities • Install electrical cables and wires as per drawing <ul style="list-style-type: none"> ✓ Select the PPE for installation work ✓ Use appropriate tools and equipment for installation work ✓ Fix the PVC pipe as per drawing ✓ Install the DB and switchboards after leveling ✓ Install the cables and wires as per lay out ✓ Make the joints in all circuits ✓ Insulate the joints tightly • Install the fixture as per drawings <ul style="list-style-type: none"> ✓ Install the fixtures as per manuals ✓ Connect the Main circuit with branch circuits ✓ Check Phase Sequence and continuity ✓ Connect the fixture with wiring of each circuit ✓ Check the functioning of fixture or equipment ✓ Commission it after tests. • Perform repair and maintenance of electrical equipment <ul style="list-style-type: none"> ✓ Check supply of each circuit ✓ Trace the fault in each circuit ✓ Check the functionality of Equipment /fixtures ✓ Remove the faults and replace the damage part ✓ Check the functionality of repaired equipment /fixture

	<ul style="list-style-type: none"> • Ensure Occupational Health and Safety <ul style="list-style-type: none"> ✓ Maintain a safe working environment and safe system to work. ✓ Control and minimize the risks to ensure that injury or illness is prevented ✓ Maintain safe distances between self and machinery, and machine-to-machine. ✓ Ensure workers in the performance of any hazardous work receive the necessary supervision. ✓ Provide first aid if required in case of electrical shock.
2. Other requirements	<ul style="list-style-type: none"> • Supply a completed requisition order signed by an issuing officer
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 Name:

Father Name:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS. Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of installing, testing and repairing electrical systems and equipment to meet supplied wiring layout requirements under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks :			
Interpret electrical drawing of building for fixing PVC pipes:	Selected PVC pipes as per drawing			
	Measured quantity of PVC pipes as per drawing			
Measure Rooms and mark levels according to wiring plan	Calculated the rooms for load and circuit			
	Marked the level of wiring and fixture			
Calculate load of electrical equipment and select cables	Calculated the load for development of circuits			
	Selecting the Cables for each circuit			
	Selected the fixture for each room			
	Made BOQ for estimation			
	Generated the Material requisition to draw the material			
	Checked the received material specification and quantities			
Install electrical cables and wires as per drawing	Selected the PPE for installation work			
	Used appropriate tools and equipment for installation work			
	Fixed the PVC pipe as per drawing			
	Installed the DB and switchboards after leveling			
	Installed the cables and wires as per lay out			
	Tightened the joints in all circuits			
	Insulated the joints tightly			
Install the fixture as per drawings	Installed the fixtures as per manuals			
	Connected the Main circuit with branch circuits			
	Checked Phase Sequence and continuity			
	Connected the fixture with wiring of each circuit			
	checked the functioning of fixture or equipment			
	Commissioned it after tests.			

Perform repair and maintenance of electrical equipment	Checked supply of each circuit			
	Traced out the faults in each circuit			
	Checked the functionality of Equipment /fixtures			
	Removed the faults and replace the damage part			
	Checked the functionality of repaired equipment /fixture			
Ensure Occupational Health and Safety	Maintained a safe working environment and safe system to work.			
	Controlled and minimised the risks to ensure that injury or illness is prevented			
	Maintained safe distances between self and machinery, and machine-to-machine.			
	Ensured workers in the performance of any hazardous work receive the necessary supervision.			
	Provided first aid if required in case of electrical shock.			
2. Other requirements	Supplied a completed requisition order signed by an issuing officer			

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

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

2. List of tools and equipment required

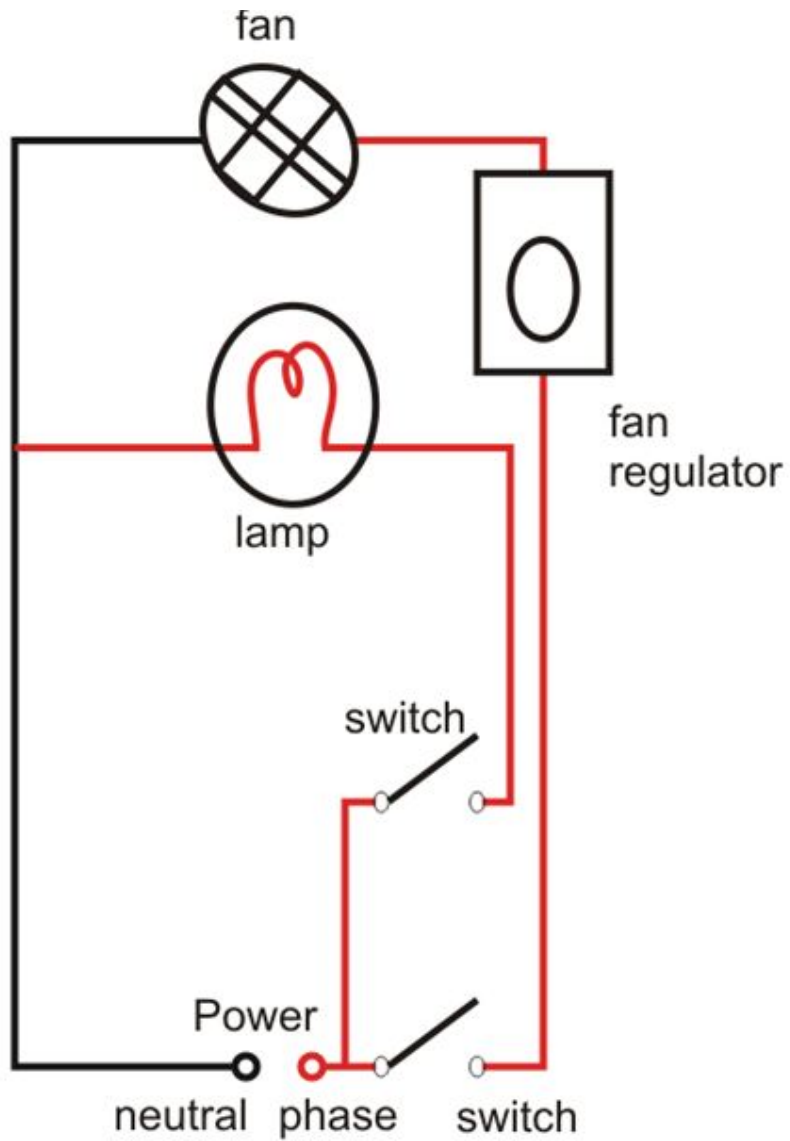
S. No	Name of Items (tools and equipment)	Quantity
1	Safety Hamlet	5
2	Insulated Plier With Side Cutter	5
3	Insulated Long Nose Plier With Side Cutter	5
4	Insulated wire Cutter	5
5	wire stripers	5
6	insulated screw drivers	5
7	High Insulated Rubber Hand Gloves	5
8	Insulated Work Bench	5
9	Power Supply	5
10	Main Switch	5
11	Tag Off / Log Off Numbers	5
12	Drawing Board	5
13	Papers for Drawing	5
14	Led Pencil	5
15	Measuring Steel Tape	5
16	Steel Rule	5
17	PVC Pipes Different Size	5
18	Insulated Plier With Side Cutter	5
19	Insulated Long Nose Plier With Side Cutter	5
20	Insulated wire Cutter	5
21	Blow Lamp	5
22	Hacksaw	5
23	Measuring Steel Tap	5
24	Steel Wire	5
25	Milled Steel Wire	5
26	Calculator	5
27	Measuring Steel Tape	5
28	Steel Rule	5
29	Drawing Board	5
30	Switch Board	5
31	Distribution Board	5
32	Steel Rule	5
33	Insulated Plier With Side Cutter	5
34	Insulated Long Nose Plier With Side Cutter	5
35	Insulated wire Cutter	5

36	Flat Screw Driver	5
37	Level tool	5
38	Hammer of 2 Kg	5
39	Tong Tester Metter	5
40	Calculator	5
41	Micrometer 0 To 1	5
42	Insulated Plier With Side Cutter	5
43	Insulated Long Nose Plier With Side Cutter	5
44	Insulated wire Cutter	5
45	Screw Driver Different Size	5
46	Micrometer 0 To 1	5
47	Calculator	5
48	Different Electrical Item	5
49	Watt meter	5
50	Micrometer/SWG Gauge	5
51	Chisel 8'	5
52	Hammer 2kg	5
53	Insulated Plier With Side Cutter	5
54	Insulated Long Nose Plier With Side Cutter	5
55	Insulated wire Cutter	5
56	Screw Driver Different Size	5
57	Earth Electrode	5
58	Boring Machine	1
59	8 SWG Size Wire	5
60	Bus Bar	5
61	Screw Wrench	5
62	Spener Set	5

3. List of consumable items required		
S. No	Consumable Items	Quantity
1	safety shoes	5
2	Safety Eyes Glass	5
3	safety gloves	5
4	Dungaree	5
5	Phase tester	5
6	Insulated Rubber Mat	5
7	Samad Bond	1 pack
8	Tag Off / Log Off Numbers	5
9	Map OHS Precautions	1
10	Documents Related Drawing	as per requirements
11	Papers for Drawing	15
12	Led Pencil	15
13	Rubber	15
14	Permanent Marker	10
15	Tag Off / Log Off Numbers	15
16	Solution Pak	1 pack
17	joints boxes	15
18	PVC Pipes Different Size	5 length
19	fan boxes	15
20	junctions boxes	15
21	Ball Point	10
22	job related documents	as per requirements
23	Papers for Drawing	15

24	Led Pencil	15
25	Rubber	15
26	switch board	15
27	Distribution Board as per Required	15
28	Drawing Map	1
29	Power Plug (Male, Female)	15
30	Plastic Board	15
31	Light Plug and Box	15
32	Main Supply Cable	2 coil
33	Phase tester	5
34	TV and Telephone Box	15
35	Paper for Documentation	15
36	Light Plug	15
37	Switch Board	15
38	TV Plug with Board	15
39	Marker	15
40	Chisel	15
41	PVC pipes	5 length
42	Switch Board with Box	15
43	PVC elbow	15
44	PVC Socket	15
45	PVC clamp	15
46	Volt Metter	15
47	Paper	15
48	Ballpoint	15
49	Cable According to Specification	different size of cables as per requirement
50	Cable Size Table	5
51	Insulation Tester	5
52	Distribution Board as per Required	5
53	Cable Specifications Table	5
54	Nut Bolt	3 dozen different sizes
55	earth wire	as per requirements
56	Copper Bus Bar	5
57	Conduit Pipe/ PVC Pipe	5 length
58	Nut Bolt	3 dozen

WIRING DIAGRAM FOR GEN ELECTRICAL





ASSESSMENT
MATERIAL

EVIDENCE GUIDE

Qualification
General Electrician
Level: 2
Credit: 15
Version: 1

INTERPRET ELECTRICAL DRAWING OF BUILDING FOR FIXING PVC PIPES

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

Assessor Code

Assessor Signature

Date

DD	MM	YYYY					

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued
by Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate 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 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 NAVTTC

NAVTTC 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	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INTERPRET ELECTRICAL DRAWING OF BUILDING FOR FIXING PVC PIPES	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> Collect job Documentation (e.g. Drawing , Map, History) Locate Electrical Points as per Drawings Perform Measurement of PVC Pipes of different sizes Perform fixing of pipes with milled steel wires Fix Joint with PVC solution Check all fan boxes and junction boxes 		
Knowledge Assessment		✓		<ul style="list-style-type: none"> Answer any questions your Assessor may have during the practical assessment 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to do within half Hour.

- Collect job Documentation (e.g. Drawing , Map, History)
- Locate Electrical Points as per Drawings
- Perform Measurement of PVC Pipes of different sizes
- Perform fixing of pipes with milled steel wires
- Fix Joint with PVC solution
- Check all fan boxes and junction boxes

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of interpreting electrical drawing of building for fixing PVC pipes 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"> • Collect job Documentation (e.g. Drawing , Map, History) <ul style="list-style-type: none"> ✓ Identify the area / person to collect the job documentation from. ✓ Collect the appropriate job document. • Locate Electrical Points as per Drawings <ul style="list-style-type: none"> ✓ Draw Electrical Drawing for Pipe fixing ✓ Interpret the drawing for pipe fixing ✓ Identify location of different types of electrical points as per job document. ✓ Verify location of different types of electrical points as per job document. ✓ Apply tags to the different electrical points. • Perform Measurement of PVC Pipes of different sizes <ul style="list-style-type: none"> ✓ Interpret wiring drawings ✓ Select proper measuring tools. ✓ Use proper measuring unit. ✓ Perform measuring of PVC pipe as per requirement. • Perform fixing of pipes with milled steel wires <ul style="list-style-type: none"> ✓ Interpret drawings ✓ Mark the points ✓ Lay pipe as per drawing ✓ Fix pipe with mild steel wire. ✓ Check fixing of pipe in compliance with job document. • Fix Joint with PVC solution <ul style="list-style-type: none"> ✓ Select proper PVC joining solution. ✓ Apply PVC solution as per standard. ✓ Check the joint strength. • Check all fan boxes and junction boxes <ul style="list-style-type: none"> ✓ Check all fan and light boxes are laid out as per drawing. ✓ Check all junction boxes are laid out as per drawing. ✓ Perform necessary adjustments. ✓ Clear blockage, if required. • Follow the Occupational Health and safety procedure. • In case of any contingencies always report to supervisor after taking immediate precautionary measures as per SOP,s.
2. Answer any questions your Assessor may have during the practical assessment	<p>My answers to questions are correct and demonstrate my understanding of the topics and their application:</p>

CANDIDATE NAME:

FATHER NAME:

**INSTRUCTION
FOR
ASSESSOR**

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS.

Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of interpreting electrical drawing of building for fixing PVC pipes under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out:			
Collected the job Documentation (e.g. Drawing, Map, History)	Identified the area / person to collect the job documentation from.			
	Collected the appropriate job document.			
Located Electrical Points as per Drawings	Made Electrical Drawing for Pipe fixing			
	Interpreted the drawing for pipe fixing			
	Identified location of different types of electrical points as per job document.			
	Verified location of different types of electrical points as per job document			
	Applied tags to the different electrical points.			
Performed Measurement of PVC Pipes of different sizes	Interpreted wiring drawings			
	Selected proper measuring tools			
	Used proper measuring unit.			
	Performed measuring of PVC pipe as per requirement.			
Performed fixing of pipes with milled steel wires	Interpreted drawings			
	Marked the points			
	Laid pipe as per drawing			
	Fixed pipe with mild steel wire			
	Checked fixing of pipe in compliance with job document.			
Fixed the Joint with PVC solution	Selected proper PVC joining solution.			
	Applied PVC solution as per standard.			
	Checked the joint strength.			

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
Checked all fan boxes and junction boxes	Checked all fan and light boxes are laid out as per drawing.			
	Checked all junction boxes laid out as per drawing			
	.Performed necessary adjustments.			
	Cleared blockage, if required.			
	Followed the Occupational Health and safety procedure.			
2. Answer any questions you may have during the practical assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</i></p>			

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

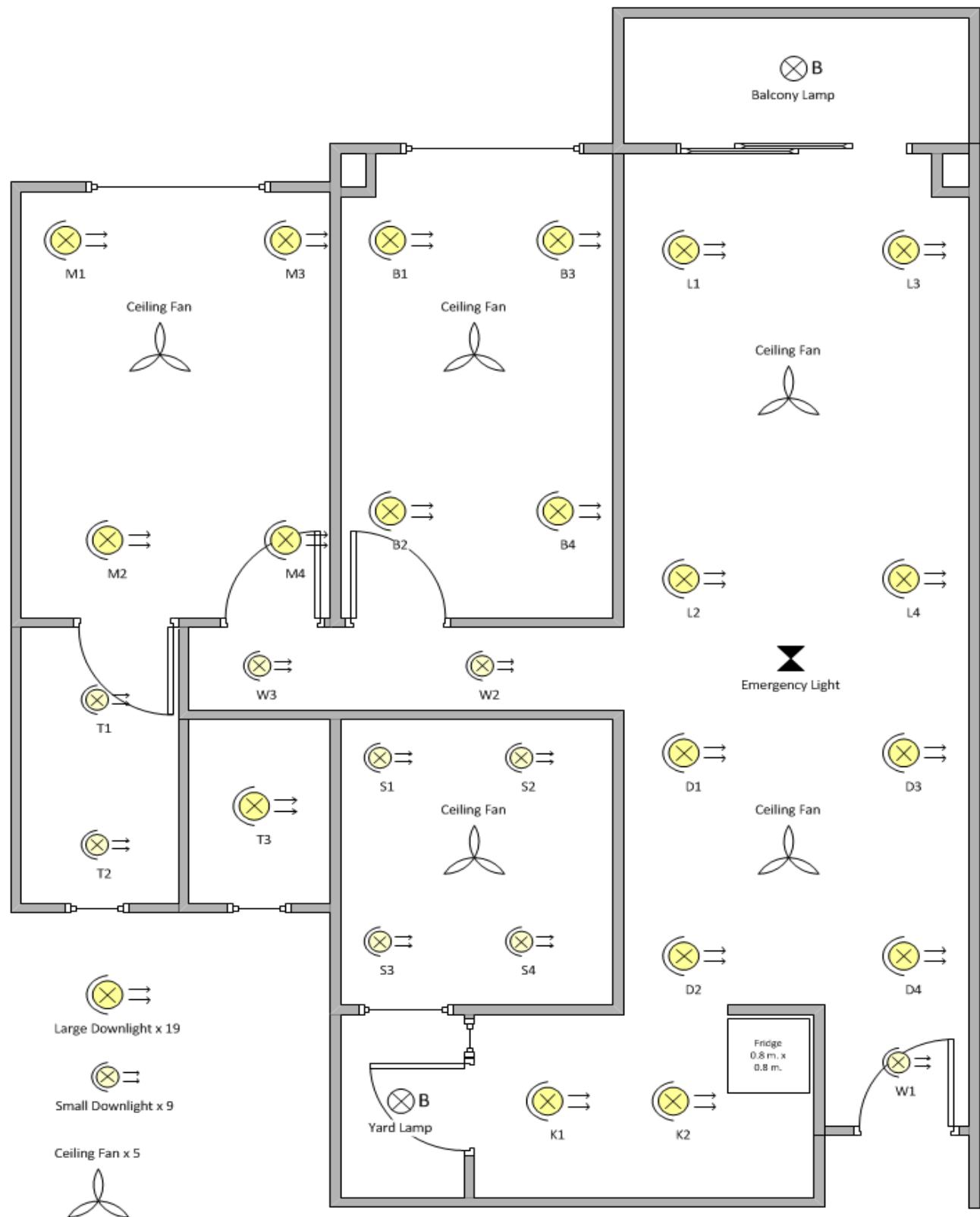
2. List of tools and equipment required

S. No	Name of Items (tools and equipment)	Quantity
1	Drawing Board	5
2	Papers for Drawing	5
3	Led Pencil	5
4	Measuring Steel Tape	5
5	Steel Rule	5
6	PVC Pipes Different Size	5
7	Insulated Plier With Side Cutter	5
8	Insulated Long Nose Plier With Side Cutter	5
9	Insulated wire Cutter	5
10	Blow Lamp	5
11	Hacksaw	5
12	Measuring Steel Tap	5
13	Steel Wire	5
14	Milled Steel Wire	5
15	Calculator	5

3. List of consumable items required

S. No	Consumable Items	Quantity
1	Documents Related Drawing	as per requirements
2	Papers for Drawing	15
3	Led Pencil	15
4	Rubber	15
5	Permanent Marker	10
6	Tag Off / Log Off Numbers	15
7	Solution Pak	1 pack
8	joints boxes	15
9	PVC Pipes Different Size	5 length
10	fan boxes	15
11	junctions boxes	15

WIRING DIAGRAM FOR GEN ELECTRICAL





ASSESSMENT
MATERIAL

EVIDENCE GUIDE

Qualification
General Electrician
Level: 2
Credit: 17
Version: 1

PERFORM MEASUREMENT OF WIRING PLAN

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

Assessor Code

Assessor Signature

Date

DD	MM	YYYY					

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate 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 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 NAVTTC

NAVTTC OFFICE ONLY

1. DATE
FORM
RECEIVED:

DD	MM	YYYY					

2. DATE ENTERED INTO
DATABASE:

DD	MM	YYYY					

1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:

FATHER NAME:

ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: PERFORM MEASUREMENT OF WIRING PLAN	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> Perform measurement of rooms Perform measurement of distribution board to switch board Perform measurement of power plugs for AC Perform measurement of light plug Perform measurement of main circuit to distribution board Perform measurement of TV, telephone, intercom, internet cable from main to junction board Perform levelling of switch boards (AC light, Light plug, TV) Perform levelling of room wall lights Perform chiseling with wall cutter Perform fixing of PVC pipes/switch box 		
Knowledge Assessment		✓		<ul style="list-style-type: none"> Answer any questions your Assessor may have during the practical assessment. 		
Other requirements	✓			<ul style="list-style-type: none"> Supply records of the all measurements in appropriate document 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to perform the following tasks within one hour:

- Perform measurement of rooms
- Perform measurement of distribution board to switch board
- Perform measurement of power plugs for AC
- Perform measurement of light plug
- Perform measurement of main circuit to distribution board
- Perform measurement of TV, telephone, intercom, internet cable from main to junction board
- Perform levelling of switch boards (AC light, Light plug, TV)
- Perform levelling of room wall lights
- Perform chiseling with wall cutter
- Perform fixing of PVC pipes/switch box for this assessment you are required to:
- Complete practical assessment tasks of performing measurement plan
- Answer any questions your Assessor may have for you

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of performing measurement of wiring plan 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 measurement of rooms <ul style="list-style-type: none"> ✓ Identify the wiring points as per drawing ✓ Mark the wiring points as per drawing. ✓ Select the require measuring tool. ✓ Measurement of room. ✓ Record the measurements in appropriate document. • Perform measurement of distribution board to switch board <ul style="list-style-type: none"> ✓ Identify the wiring route from distribution board to switch board as per electrical drawing. ✓ Mark the distribution board and switchboard ✓ Measure the distance from distribution board to switch board. ✓ Record the measurements in appropriate document. • Perform measurement of power plugs for AC <ul style="list-style-type: none"> ✓ Identify the wiring route from distribution board to AC power plugs. ✓ Mark the AC as per drawing ✓ Measure the distance from distribution board to AC power plug ✓ Record the measurements in appropriate document. • Perform measurement of light plug <ul style="list-style-type: none"> ✓ Identify the wiring route from switch board to light plugs. ✓ Mark the light plug point as per drawing. ✓ Measure the distance from distribution board to switch board to light plugs. ✓ Record the measurements in appropriate document. • Perform measurement of main circuit to distribution board <ul style="list-style-type: none"> ✓ Identify the wiring route from Main Circuit to distribution board. ✓ Mark the main circuit to distribution board points as per drawing ✓ Measure the distance from Main Circuit to distribution board. ✓ Record the measurements in appropriate document. • Perform measurement of TV, telephone, intercom, internet cable from main to junction board <ul style="list-style-type: none"> ✓ Identify the wiring route of TV, telephone, intercom, internet cable from main to junction board ✓ Mark telephone, TV, intercom, internet cable points as per drawing. ✓ Measure the distance of TV, telephone, intercom, internet cable from main to junction board. ✓ Record the measurements in appropriate document. • Perform levelling of switch boards (AC light, Light plug, TV)

	<ul style="list-style-type: none"> ✓ Select levelling tools according to job requirement. ✓ Interpret the drawing ✓ Mark the levels. ✓ Perform levelling of switch boards (TV, telephone, intercom, internet connection) • - Perform levelling of room wall lights ✓ Select levelling tools according to job requirement. • Interpret drawing <ul style="list-style-type: none"> ✓ Mark the levels. ✓ Perform levelling of wall lights • Perform chiseling with wall cutter <ul style="list-style-type: none"> ✓ Select the appropriate size of wall cutter. ✓ Perform chiseling at the marked points. ✓ Check the levels of chiseled points • Perform fixing of PVC pipes/switch box <ul style="list-style-type: none"> ✓ Interpret drawing ✓ Mark the points as per drawing ✓ Identify the appropriate PVC pipe according to required sizes. ✓ Fix the pipe and switch boxes at their desired locations. <p>Gen: Follow the Occupational Health and safety procedure.</p> <p>NOTE: In case of any contingencies always report to supervisor after taking immediate precautionary measures as per SOP,s.</p>
2. Other requirements	<ul style="list-style-type: none"> • Supply records of the all measurements in appropriate document
4. 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 NAME:

FATHER NAME:

**INSTRUCTION
FOR ASSESSOR**

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS.

Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of performing measurement of wiring plan under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks.			
Performed measurement of rooms	Identified the wiring points as per drawing			
	Made the wiring points as per drawing. Select the require measuring tool.			
	Measured the room			
	Recorded the measurements in appropriate document.			
Performed measurement of distribution board to switch board	Identified the wiring route from distribution board to switch board as per electrical drawing			
	Made the distribution board and switchboard			
	Measure the distance from distribution board to switch board.			
Performed measurement of power plugs for AC	Recorded the measurements in appropriate document.			
	Identified the wiring route from distribution board to AC power plugs.			
	Marked the AC as per drawing			
	Measured the distance from distribution board to AC power plug			
	Recorded the measurements in appropriate document			
Performed measurement of light plug	Identified the wiring route from switch board to light plugs.			
	Marked the light plug point as per drawing.			
	Measured the distance from distribution board to switch board to light plugs.			
	Recorded the measurements in appropriate document			
Performed measurement of main circuit to distribution board	Identified the wiring route from Main Circuit to distribution board.			
	Marked the main circuit to distribution board points as per drawing			
	Measured the distance from Main Circuit to distribution board.			

	Recorded the measurements in appropriate document.			
Performed measurement of TV, telephone, intercom, internet cable from main to	Identified the wiring route of TV, telephone, intercom, internet cable from main to junction board			
	Marked telephone, TV, intercom, internet cable points as per drawing.			
	Measured the distance of TV, telephone intercom, internet cable from main to junction board			
	Recorded the measurements in appropriate document.			
Performed levelling of switch boards (AC light, Light plug, TV)	Selected levelling tools according to job requirement.			
	Interpreted the drawing			
	Marked the levels			
	Performed levelling of switch boards (TV, telephone, intercom, internet connection)			
Performed levelling of room wall lights	Selected levelling tools according to job requirement.			
	Interpreted drawing			
	Marked the levels.			
	Performed levelling of wall lights			
Performed chiseling with wall cutter	Selected the appropriate size of wall cutter.			
	Performed chiseling at the marked points.			
	Checked the levels of chiseled points			
Performed fixing of PVC pipes/switch box junction board	Interpreted drawing			
	Marked the points as per drawing			
	Identified the appropriate PVC pipe according to required sizes.			
	Fixed the pipe and switch boxes at their desired locations			
	Followed the occupational health and safety procedure.			
	Identified the wiring route of TV, telephone,			
Other requirements	Supplied records of all measurements			
	Followed the Occupational Health and safety procedure.			
	In case of any contingencies always report to supervisor after taking immediate precautionary measures as per SOP,s.			

<p>3. Answer any questions you 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><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</i></p>			
--	---	--	--	--

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

2. List of tools and equipment required

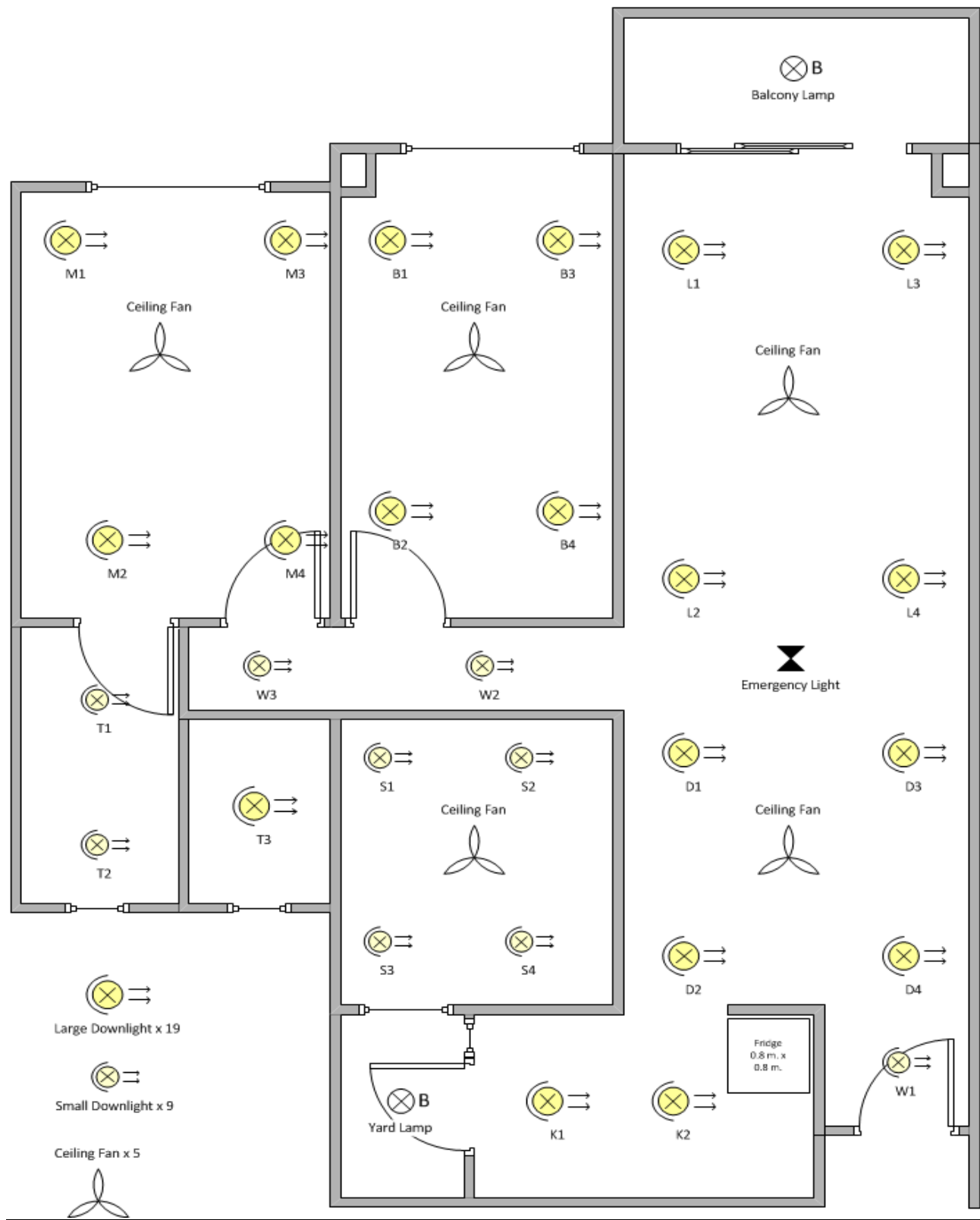
S. No	Name of Items (tools and equipment)	Quantity
1	Measuring Steel Tape	5
2	Steel Rule	5
3	Drawing Board	5
4	Switch Board	5
5	Distribution Board	5
6	Steel Rule	5
7	Insulated Plier With Side Cutter	5
8	Insulated Long Nose Plier With Side Cutter	5
9	Insulated wire Cutter	5
10	Flat Screw Driver	5
11	Level tool	5
12	Hammer of 2 Kg	5

3. List of consumable items required

S. No	Consumable Items	Quantity
1	Ball Point	10
2	job related documents	as per requirements
3	Papers for Drawing	15
4	Led Pencil	15
5	Rubber	15
6	switch board	15
7	Distribution Board as per Required	15
8	Drawing Map	1
9	Power Plug (Male, Female)	15
10	Plastic Board	15
12	Light Plug and Box	15
13	Main Supply Cable	2 coil
14	Phase tester	5
15	TV and Telephone Box	15
16	Paper for Documentation	15
17	Light Plug	15
18	Switch Board	15
19	TV Plug with Board	15
20	Marker	15
21	Chisel	15

22	PVC pipes	5 length
23	Switch Board with Box	15
24	PVC elbow	15
25	PVC Socket	15

WIRING DIAGRAM FOR GEN ELECTRICAL





ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification
General Electrician
Level: 2
Credit: 10
Version: 1

CALCULATE ELECTRICAL APPLIANCES LOAD

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

Assessor Code

Assessor Signature

Date

DD		MM		YYYY					

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate 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 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 NAVTTC

NAVTTC OFFICE ONLY

1. DATE
FORM
RECEIVED:

DD		MM		YYYY					

2. DATE ENTERED INTO
DATABASE:

DD		MM		YYYY					

1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:				FATHER NAME:		
ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: CALCULATE ELECTRICAL APPLIANCE LOAD	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> Calculate load of wiring Selection of cables according to room load Selection of size of cables according to appliances Prepare estimates of required electrical items 		
Knowledge Assessment	✓	✓		<ul style="list-style-type: none"> Complete knowledge assessment Answer any questions your Assessor may have during the practical assessment 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to do following tasks within 1 (one) hour:

- Calculate load of wiring
- Selection of cables according to room load
- Selection of size of cables according to appliances
- Prepare estimates of required electrical items

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task calculating electrical appliance load 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"> • Calculate load of wiring <ul style="list-style-type: none"> ✓ Enlist the equipment/appliances ✓ Estimation load of wiring against each item. ✓ Perform technical calculation ✓ Record estimated load • Selection of cables according to room load <ul style="list-style-type: none"> ✓ Interpret standard Specification Table of Cables/Wires. ✓ Estimate the required room Load. ✓ Select Cable size according to estimated load ✓ check the quality of cables.(Silver / Copper) ✓ check the size of cables.(under gauge) • Selection of size of cables according to appliances <ul style="list-style-type: none"> ✓ Interpret standard and Specification of cables/Wires. ✓ Estimate the required appliances Load. ✓ Select Cable size according to estimated load ✓ check the quality of cables.(Silver / Copper) ✓ check the size of cables.(under gauge) • Prepare estimates of required electrical items <ul style="list-style-type: none"> ✓ Interpret Quantity of Materials as per Drawing ✓ Enlist Quantity of Material with Specification ✓ Prepare Estimate of required Items and accessories ✓ Follow the Occupational Health and safety procedure. ✓ In case of any contingencies always report to supervisor after taking immediate precautionary measures as per SOP,s.
2. Complete knowledge assessment within set timeframe	<ul style="list-style-type: none"> • Complete knowledge assessment within 30 minutes on the following topics: <ul style="list-style-type: none"> ○ Load calculations ○ Wiring load capacity calculations ○ Load management plans ○ Load flow study ○ All answers were correct
3. Answer any questions your Assessor may have during the practical assessment	<p>My answers to questions are correct and demonstrate my understanding of the topics and their application:</p>

Candidate Name Father Name

**INSTRUCTIONS
FOR ASSESSOR**

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS.
Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of calculating electrical appliance load under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks:			
Calculated the load of wiring	Enlisted the equipment/appliances			
	Estimated the load of wiring against each item.			
	Performed technical calculation			
	Recorded the estimated load			
Selected cables according to room load	Interpreting standard Specification Table of Cables/Wires.			
	Estimated the required room Load.			
	Selected the cable size according to estimated load			
	checked the quality of cables.(Silver / Copper)			
	Checked the size of cables.(under gauge)			
Selected the f size of cables according to appliances	Interpreted standard and Specification of cables/Wires.			
	Estimated the required appliances Load.			
	Selected Cable size according to estimated load			
	Checked the quality of cables.(Silver / Copper)			
	checked the size of cables.(under gauge)			
Prepared estimates of required electrical items	Interpreted Quantity of Materials as per Drawing			
	Enlisted Quantity of Material with Specification			
	Prepared estimate of required Items and accessories as per size and requirement of load.			
	Followed the Occupational Health and safety procedure.			
2. Completes knowledge assessment within set timeframe	Completed knowledge assessment within 30 minutes on the following topics: <ul style="list-style-type: none"> o Load calculations o Wiring load capacity calculations o Load management plans o Load flow study 			

<p>3. Answer any questions you 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><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</i></p>			
--	---	--	--	--

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

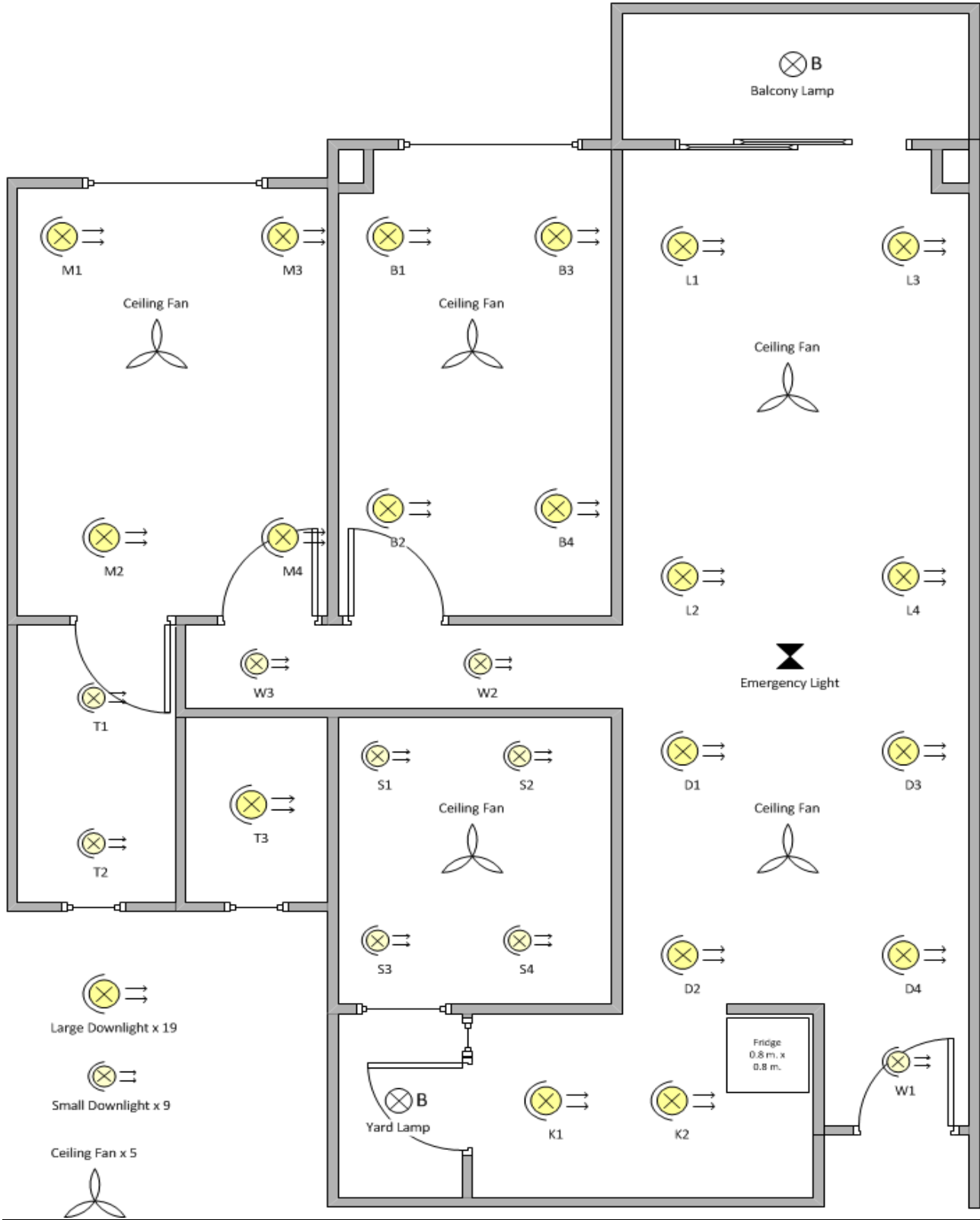
2. List of tools and equipment required

S. No	Name of Items (tools and equipment)	Quantity
1	Tong Tester Metter	5
2	Calculator	5
3	Micrometer 0 To 1	5
4	Insulated Plier With Side Cutter	5
5	Insulated Long Nose Plier With Side Cutter	5
6	Insulated wire Cutter	5
7	Screw Driver Different Size	5
8	Micrometer 0 To 1	5
9	Calculator	5
10	Different Electrical Item	5
11	Watt meter	5

3. List of consumable items required

S. No	Consumable Items	Quantity
1	PVC clamp	15
2	Volt Metter	15
3	Paper	15
4	Ballpoint	15
5	Cable According to Specification	different sizes of cables as per requirements
6	Cable Size Table	5

WIRING DIAGRAM FOR GEN ELECTRICAL





ASSESSMENT MATERIAL

EVIDENCE GUIDE

Qualification
General Electrician
Level: 2
Credit: 13
Version: 1

INSTALL ELECTRICAL CABLES AND WIRES

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

Assessor Code

Assessor Signature

Date

DD	MM	YYYY							

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued by
Assessment Body:

Gender

Male ☐

Female ☐

Transgender ☐

Candidate 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 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 NAVTTC

NAVTTC OFFICE ONLY

1. DATE
FORM
RECEIVED:

DD	MM	YYYY					

2. DATE ENTERED INTO
DATABASE:

DD	MM	YYYY					

1

ASSESSMENT SUMMARY & RECORD

CANDIDATE NAME:				FATHER NAME:		
ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: INSTALL ELECTRICAL CABLES AND WIRES	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> • Install main distribution board • Install earthing connections properly • Install cables from main circuit to sub circuit • Carry out wiring and earth testing • Install cables from sub circuit to branch circuit • Install cables from branch circuit to electrical appliance • Check all wiring joints • Check wiring and earth testing 		
Knowledge Assessment	✓	✓		<ul style="list-style-type: none"> • Complete knowledge assessment • Answer any questions your Assessor may have during the practical assessment 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to perform the following tasks within 3 (three) hours:

- Install main distribution board
- Install earthing connections properly
- Install cables from main circuit to sub circuit
- Carry out wiring and earth testing
- Install cables from sub circuit to branch circuit
- Install cables from branch circuit to electrical appliance
- Check all wiring joints
- Check wiring and earth testing

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical installing electrical cables/wire under observation by an Assessor	<p>During a practical assessment of , under observation by an assessor, I will correctly:</p> <ul style="list-style-type: none"> • Install main distribution board <ul style="list-style-type: none"> ✓ Interpret wiring drawings and layout ✓ Select Size of Distribution Board (DB) as per Requirement ✓ Install Distribution Box • Install earthing connections properly <ul style="list-style-type: none"> ✓ Select Location for earthing ✓ Perform earth testing ✓ Use earthing material as per requirement ✓ Select proper size of earthing cable and plate. ✓ Install Earthing system ✓ Connect earthing system with main distribution box ✓ Perform earthing test • Install cables from main circuit to sub circuit <ul style="list-style-type: none"> ✓ Interpret wiring drawings and layout ✓ Select Wires/Cables as per calculation according to colour code ✓ Inspect Wire as per load requirement ✓ Lay Wires according to diagram ✓ Connect branch circuits to sub circuits ✓ Insulate Joints and Wires • Install cables from sub circuit to branch circuit <ul style="list-style-type: none"> ✓ Select The required Tools for performing connection ✓ Perform Connections in-line with the cables/ wires colour coding ✓ Check wiring joints ✓ Connect branch circuit with supply. ✓ Insulate joints • Install cables from branch circuit to electrical appliance <ul style="list-style-type: none"> ✓ Select The required Tools for performing connection ✓ Perform Connections in-line with the cables/ wires colour coding ✓ check wiring joints ✓ Connect Branch circuit with supply • Insulate joints <ul style="list-style-type: none"> ✓ Check all wiring joints ✓ Inspect the joints ✓ Tighten the joints if required. ✓ Soldering and Insulate joints • Check wiring and earth testing

	<ul style="list-style-type: none"> ✓ Select The required testing Tools/equipment ✓ Perform Physical Inspection of wiring/Cabling ✓ Perform Continuity Test and fix the problem accordingly ✓ Perform Insulation Test and fix the problem accordingly ✓ Perform Earth Test and fix the problem accordingly ✓ Install the appliances/equipment ✓ Connect main supply to the Distribution box ✓ Perform Appliances Functional Test • Follow the Occupational Health and safety procedure. • In case of any contingencies always report to supervisor after taking immediate precautionary measures as per SOP,s.
2. Complete knowledge assessment within set timeframe	<ul style="list-style-type: none"> • Complete knowledge assessment within set timeframe of 30 minutes on the following topics: <ul style="list-style-type: none"> ○ Issues relating to installing: <ul style="list-style-type: none"> ▪ main distribution boards ▪ main, sub and branch circuit cables ▪ electrical appliances and accessories ○ Checking wiring joints ○ Safe work practices when working with wires and cables
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 NAME:

FATHER NAME:

INSTRUCTIONS FOR ASSESSOR

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS.

Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of installing electrical cables and wire under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly:			
Installed main distribution board	Interpret wiring drawings and layout			
	Selected Size of Distribution Board (DB) as per Requirement			
	Installed Distribution Box			
Installed earthing connections properly	Selected Location for earthing			
	Performed earth testing			
	Used earthing material as per requirement			
	selected proper size of earthing cable and plate			
	Installed Earthing system			
	Connected earthing system with main distribution box			
	Performed earthing test			
Installed cables from main circuit to sub circuit	Interpret wiring drawings and layout			
	Selected Wires/Cables as per calculated according to colour code			
	Inspected Wire as per load requirement			
	Laid wires according to diagram			
	Connected branch circuits to sub circuits			
	Insulated joints and Wires			
Installed cables from sub circuit to branch circuit	Selected the required Tools for performing connection			
	Performed connections in-line with the cables/ wires colour coding			
	Checked wiring joint			
	Connected branch circuit with supply. Insulated joints			
Installed cables from branch circuit to electrical appliance	Selected the required Tools for performing connection			

	Performed Connections in-line with the cables/ wires colour coding			
	checking wiring joints			
Checked all wiring joints	Connected branch circuit with supply Insulated joints			
	Inspected the joints			
	Tightened the joints if required.			
	Soldered and Insulate joints			
Checked wiring and earth testing	Selected the required testing Tools/equipment			
	Performed physical Inspection of wiring/Cabling			
	Performed continuity test and fix the problem accordingly			
	Performed insulation test and fix the problem accordingly			
	Performed earth test and fix the problem accordingly			
	Installed the appliances/equipment			
	Connected main supply to the Distribution box			
	Performed appliances Functional Test			
	Following the Occupational Health and safety procedure.			
2. Completes knowledge assessment within set timeframe	<ul style="list-style-type: none"> • Completed knowledge assessment within set timeframe of 30 minutes on the following topics: <ul style="list-style-type: none"> ○ Issues relating to installing: <ul style="list-style-type: none"> ▪ main distribution boards ▪ main, sub and branch circuit cables ▪ electrical appliances and accessories ○ Checking wiring joints ○ Safe work practices when working with wires and cables • Knowledge assessment completed within 30 minutes • All questions answered • All questions answered correctly 			
3. Answer any questions you may have during the practical assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</i></p>			

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

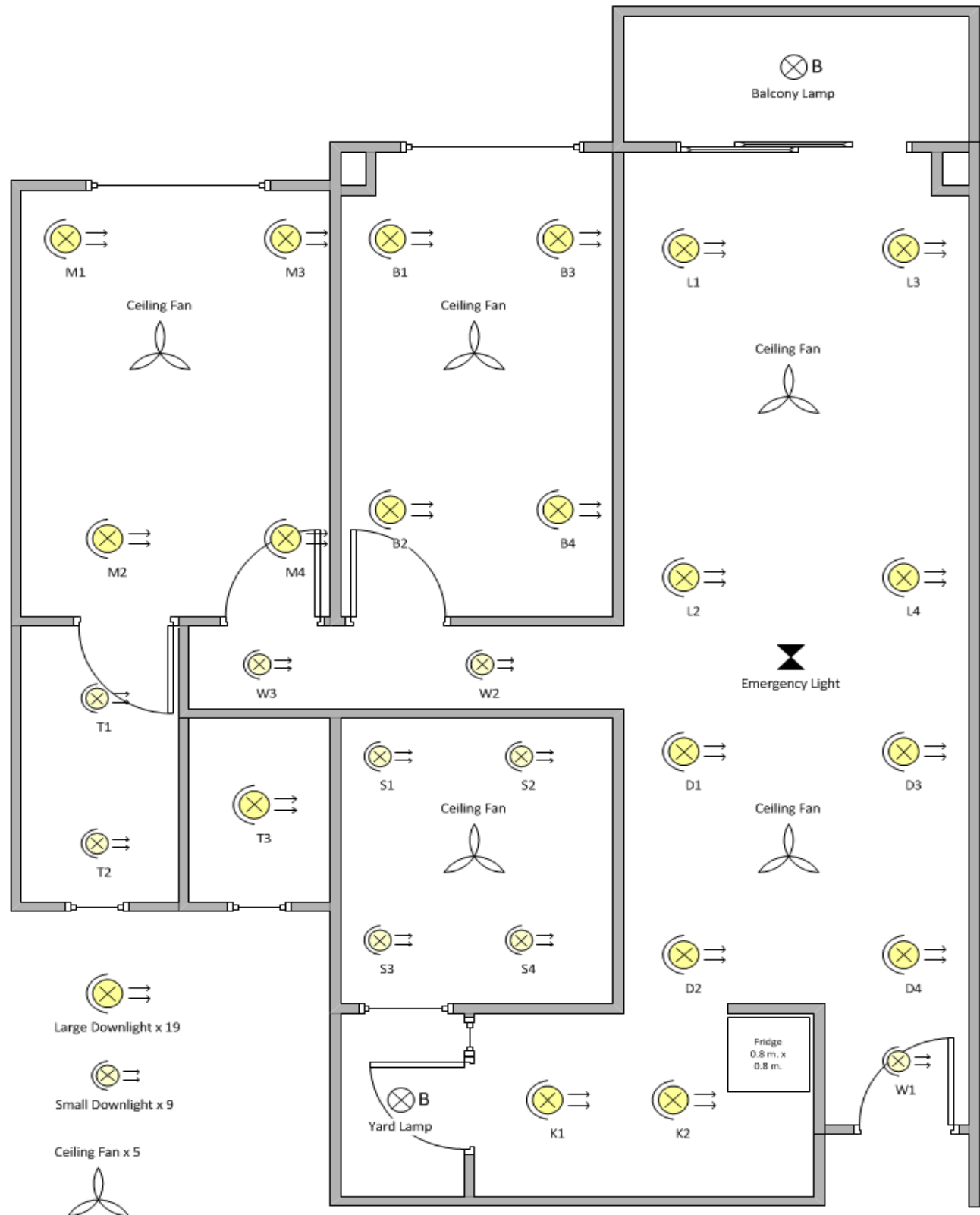
2. List of tools and equipment required

S. No	Name of Items (tools and equipment)	Quantity
1	Micrometer/SWG Gauge	5
2	Chisel 8'	5
3	Hammer 2kg	5
4	Insulated Plier With Side Cutter	5
5	Insulated Long Nose Plier With Side Cutter	5
6	Insulated wire Cutter	5
7	Screw Driver Different Size	5
8	Earth Electrode	5
9	Boring Machine	1
10	8 SWG Size Wire	5
11	Bus Bar	5
12	Screw Wrench	5
13	Spener Set	5

3. List of consumable items required

S. No	Consumable Items	Quantity
1	Insulation Tester	5
2	Distribution Board as per Required	5
3	Cable Specifications Table	5
4	Nut Bolt	3 dozen different sizes
5	earth wire	as per requirements
6	Copper Bus Bar	5
7	Conduit Pipe/PVC Pipe	5 length

WIRING DIAGRAM FOR GEN ELECTRICAL





ASSESSMENT
MATERIAL

EVIDENCE GUIDE

Qualification
General Electrician
Level: 2
Credit: 4
Version: 1

PERFORM REPAIR AND MAINTENANCE OF ELECTRICAL APPLIANCES

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

Assessor Code

Assessor Signature

Date

DD	MM	YYYY					

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate 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 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 NAVTTC

NAVTTC 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	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF COMPETENCY STANDARD: PERFORM REPAIR AND MAINTENANCE OF ELECTRICAL APPLIANCES	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> Trace faults in wiring and or electrical appliance Remove fault Repair or replace damaged part Check functionality of replaced or repaired parts or appliance 		
Knowledge Assessment	✓	✓		<ul style="list-style-type: none"> Complete knowledge assessment Answer any questions your Assessor may have during the practical assessment 		
Other requirements	✓			<ul style="list-style-type: none"> Interpret drawing Project 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to do following within two hours :

- Trace faults of wiring/appliances
- Remove faults
- Repair /Replace electrical Appliances

For this assessment you are required to:

- Complete practical assessment tasks of performing repair and maintenance of electrical appliances
- Answer any questions your Assessor may have for you

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of performing repair and maintenance of electrical appliances 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"> • Trace Fault of wiring/appliances <ul style="list-style-type: none"> ✓ Follow occupational health and safety factors. ✓ Select the required tools and equipment for tracing the faults. ✓ Check the wiring/appliances. ✓ Trace the wiring /appliances faults. • Remove fault <ul style="list-style-type: none"> ✓ Select required tools for removing the faults. ✓ Repair damaged parts. ✓ Check specification of the damaged parts. ✓ Replace damaged part as per specification ✓ Check Workability of replaced/Repaired parts • Repair /Replace Electrical Appliances <ul style="list-style-type: none"> ✓ Troubleshoot the faults of appliances. ✓ Select required tools for removing the faults. ✓ Repair damaged parts. ✓ Check specification of the damaged parts. ✓ Replace damaged parts as per specifications. ✓ Replace the appliances (Light Bulb, Belt etc.) ✓ Check workability of replaced/repared parts/appliances. <p>Gen: Follow the Occupational Health and safety procedure.</p> <p>NOTE: In case of any contingencies always report to supervisor after taking immediate precautionary measures as per SOP,s.</p>
2. Answer any questions your Assessor may have during the practical assessment	<p>My answers to questions are correct and demonstrate my understanding of the topics and their application:</p>

CANDIDATE NAME:

FATHER NAME:

**INSTRUCTION
FOR
ASSESSOR**

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS.

Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of performing repair and maintenance of electrical appliances under observation by an assessor	During a practical assessment of two hour duration, under observation by an assessor, the candidate correctly carried out the following tasks :			
Traced out faults of wiring/appliances	Followed occupational health and safety procedures.			
	Selected the required tools and equipment for tracing the faults.			
	Checked the wiring/appliances.			
	Traced out the wiring /appliances faults.			
Removed fault	Selected required tools for removing the faults.			
	Repaired damaged parts.			
	Checked specification of the damaged parts.			
	Replaced damaged part as per specification			
	Checked Workability of replaced/Repaired parts			
Repaired/replaced electrical appliances	Troubleshoot the faults of appliances.			
	Selected require tools for removing the faults.			
	Repaired damaged parts			
	Checked specification of the damaged parts.			
	Replaced damaged parts as per specifications.			
	Replaced the appliances (Light Bulb, Belt etc.)			
	Checked workability of replaced/repairs parts/appliances.			
	Followed the Occupational Health and safety procedure.			
2. Answer any questions you may have during the practical assessment	<p>Candidate's answers to questions are correct and demonstrate understanding of the topics and their application.</p> <p><i>Assessor to document below all questions asked and candidate answers. Use extra sheets if required and attach.</i></p>			

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

2. List of tools and equipment required

S. No	Name of Items (tools and equipment)	Quantity
1	Micrometer/SWG Gauge	5
2	Chisel 8'	5
3	Hammer 2kg	5
4	Insulated Plier With Side Cutter	5
5	Insulated Long Nose Plier With Side Cutter	5
6	Insulated wire Cutter	5
7	Screw Driver Different Size	5

3. List of consumable items required

S. No	Consumable Items	Quantity
1	wiring cables	2 coils for different sizes
2	sockets	15
3	2 pin sockets	15
4	light plug	15
5	3 pin sockets	15
6	Power Plug (Male, Female)	15
7	lamp holders	15
8	circuit breakers	15
9	Phase tester	5



ASSESSMENT
MATERIAL

EVIDENCE GUIDE

Qualification

General Electrician

Level: 2

Credit: 80

Version: 1

GENERAL ELECTRICIAN

CONTENTS

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

ASSESSMENT AND ASSESSOR DETAILS

Competent

☐

Not Yet Competent

☐

Assessment

☐

Re-Assessment

☐

Assessor Name:

.....

Assessor Code

DD		MM		YYYY					

Assessor Signature

.....

Date

CANDIDATE DETAILS

Candidate Name:

First Name

Last Name

Father Name

Institute Name and District

CNIC/BFORM #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Registration Number issued by
Assessment Body

Gender

Male

☐

Female

☐

Transgender

☐

Candidate 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 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

CANDIDATE NAME:				FATHER NAME:		
ACTIVITY	METHOD			DESIRED OUTCOMES	RESULT	
NATURE OF ACTIVITY	WRITTEN	ORAL	OBSERVATION	DESIRED OUTCOMES FOR SUCCESSFUL ASSESSMENT OF QUALIFICATION: GENERAL ELECTRICIAN	COMPETENT	NOT YET COMPETENT
Practical skill demonstration			✓	<ul style="list-style-type: none"> Ensure Occupational Health and Safety Interpret electrical drawing of building for fixing PVC pipes Measure rooms and mark levels according to wiring plan Calculate load of electrical equipment and select cables Install electrical cables and wires Perform repair and maintenance of electrical equipment Develop professionalism 		
Knowledge Assessment		✓		<ul style="list-style-type: none"> Answer any questions your Assessor may have during the practical assessment 		
Other requirements	✓			<ul style="list-style-type: none"> Supply a completed requisition order signed by an issuing officer 		

2

CANDIDATE ASSESSMENT

CANDIDATE NAME:

FATHER NAME:

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

GUIDANCE TO CANDIDATE

To meet this standard you are required to perform the following within **4 hours** timeframe

- Interpret electrical drawing of building for fixing PVC pipes as per attached drawing
- Measure rooms and mark levels according to wiring plan
- Calculate load of electrical equipment and select cables
- Install electrical cables and wires as per drawing.
- Install the fixture as per drawings
- Perform repair and maintenance of electrical equipment
- Ensure Occupational Health and Safety
- Develop professionalism

ACTIVITIES	CANDIDATE RESPONSE
1. Complete practical task of installing, testing and repairing electrical systems and equipment under observation by an assessor	<p>During a practical assessment within set timeframe of four hours, under observation by an assessor, I will correctly:</p> <ul style="list-style-type: none"> • Interpret electrical drawing of building for fixing PVC pipes as per attached drawing : <ul style="list-style-type: none"> ✓ Select PVC pipes as per drawing ✓ Measure quantity of PVC pipes as per drawing • Measure Rooms and mark levels according to wiring plan <ul style="list-style-type: none"> ✓ Calculate the rooms for load and circuit ✓ Mark the level of wiring and fixture • Calculate load of electrical equipment and select cables <ul style="list-style-type: none"> ✓ Calculate the load for development of circuits ✓ Select the Cables for each circuit ✓ Select the fixture for each room ✓ Make BOQ for estimation ✓ Generate the Material requisition to draw the material ✓ Check the received material specification and quantities • Install electrical cables and wires as per drawing <ul style="list-style-type: none"> ✓ Select the PPE for installation work ✓ Use appropriate tools and equipment for installation work ✓ Fix the PVC pipe as per drawing ✓ Install the DB and switchboards after leveling ✓ Install the cables and wires as per lay out ✓ Make the joints in all circuits ✓ Insulate the joints tightly • Install the fixture as per drawings <ul style="list-style-type: none"> ✓ Install the fixtures as per manuals ✓ Connect the Main circuit with branch circuits ✓ Check Phase Sequence and continuity ✓ Connect the fixture with wiring of each circuit ✓ Check the functioning of fixture or equipment ✓ Commission it after tests. • Perform repair and maintenance of electrical equipment <ul style="list-style-type: none"> ✓ Check supply of each circuit ✓ Trace the fault in each circuit ✓ Check the functionality of Equipment /fixtures ✓ Remove the faults and replace the damage part ✓ Check the functionality of repaired equipment /fixture

	<ul style="list-style-type: none"> • Ensure Occupational Health and Safety <ul style="list-style-type: none"> ✓ Maintain a safe working environment and safe system to work. ✓ Control and minimize the risks to ensure that injury or illness is prevented ✓ Maintain safe distances between self and machinery, and machine-to-machine. ✓ Ensure workers in the performance of any hazardous work receive the necessary supervision. ✓ Provide first aid if required in case of electrical shock.
2. Other requirements	<ul style="list-style-type: none"> • Supply a completed requisition order signed by an issuing officer
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 Name:

Father Name:

**INSTRUCTIONS
FOR ASSESSOR**

THIS SECTION CONTAINS MODEL ANSWERS AND/OR MINIMUM EVIDENCE REQUIREMENTS. Where model answers are provided for the Assessor, the candidate's response is not required to be identical but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of the topic and its application.

ACTIVITIES	MINIMUM EVIDENCE REQUIRED	YES	NO	ASSESSOR COMMENTS
1. Completes practical task of installing, testing and repairing electrical systems and equipment to meet supplied wiring layout requirements under observation by an assessor	During a practical assessment, under observation by an assessor, the candidate correctly carried out the following tasks :			
Interpret electrical drawing of building for fixing PVC pipes:	Selected PVC pipes as per drawing			
	Measured quantity of PVC pipes as per drawing			
Measure Rooms and mark levels according to wiring plan	Calculated the rooms for load and circuit			
	Marked the level of wiring and fixture			
Calculate load of electrical equipment and select cables	Calculated the load for development of circuits			
	Selecting the Cables for each circuit			
	Selected the fixture for each room			
	Made BOQ for estimation			
	Generated the Material requisition to draw the material			
	Checked the received material specification and quantities			
Install electrical cables and wires as per drawing	Selected the PPE for installation work			
	Used appropriate tools and equipment for installation work			
	Fixed the PVC pipe as per drawing			
	Installed the DB and switchboards after leveling			
	Installed the cables and wires as per lay out			
	Tightened the joints in all circuits			
	Insulated the joints tightly			
Install the fixture as per drawings	Installed the fixtures as per manuals			
	Connected the Main circuit with branch circuits			
	Checked Phase Sequence and continuity			
	Connected the fixture with wiring of each circuit			
	checked the functioning of fixture or equipment			
	Commissioned it after tests.			

Perform repair and maintenance of electrical equipment	Checked supply of each circuit			
	Traced out the faults in each circuit			
	Checked the functionality of Equipment /fixtures			
	Removed the faults and replace the damage part			
	Checked the functionality of repaired equipment /fixture			
Ensure Occupational Health and Safety	Maintained a safe working environment and safe system to work.			
	Controlled and minimised the risks to ensure that injury or illness is prevented			
	Maintained safe distances between self and machinery, and machine-to-machine.			
	Ensured workers in the performance of any hazardous work receive the necessary supervision.			
	Provided first aid if required in case of electrical shock.			
2. Other requirements	Supplied a completed requisition order signed by an issuing officer			

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

4

LIST OF TOOLS, EQUIPMENT, MATERIAL AND CONTEXT OF ASSESSMENT

INSTRUCTIONS

This section contains information regarding;

- Context of the assessment
- List of required tools and equipment

1. Context of Assessment

This task will be carried out in real time environment.

2. List of tools and equipment required

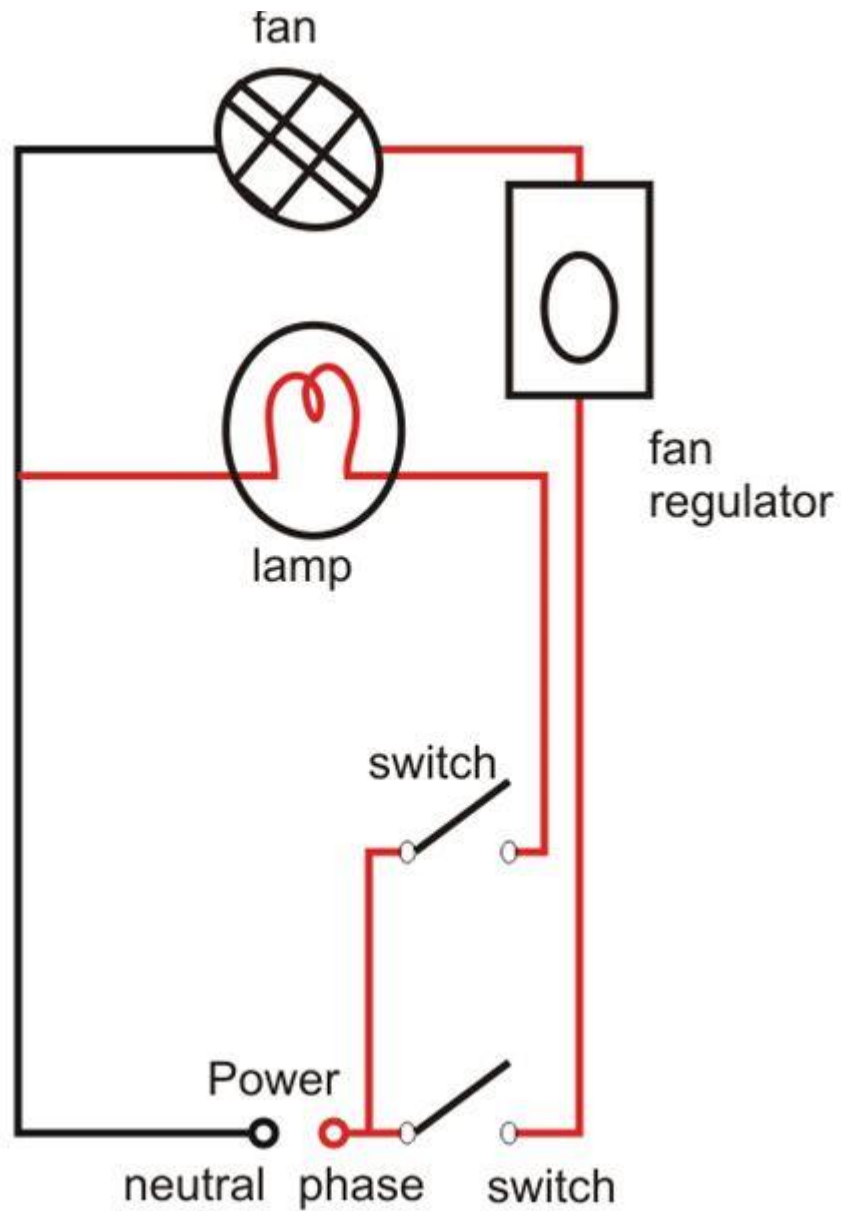
S. No	Name of Items (tools and equipment)	Quantity
1	Safety Hamlet	5
2	Insulated Plier With Side Cutter	5
3	Insulated Long Nose Plier With Side Cutter	5
4	Insulated wire Cutter	5
5	wire strippers	5
6	insulated screw drivers	5
7	High Insulated Rubber Hand Gloves	5
8	Insulated Work Bench	5
9	Power Supply	5
10	Main Switch	5
11	Tag Off / Log Off Numbers	5
12	Drawing Board	5
13	Papers for Drawing	5
14	Led Pencil	5
15	Measuring Steel Tape	5
16	Steel Rule	5
17	PVC Pipes Different Size	5
18	Insulated Plier With Side Cutter	5
19	Insulated Long Nose Plier With Side Cutter	5
20	Insulated wire Cutter	5
21	Blow Lamp	5
22	Hacksaw	5
23	Measuring Steel Tap	5
24	Steel Wire	5
25	Milled Steel Wire	5
26	Calculator	5
27	Measuring Steel Tape	5
28	Steel Rule	5
29	Drawing Board	5
30	Switch Board	5
31	Distribution Board	5
32	Steel Rule	5
33	Insulated Plier With Side Cutter	5
34	Insulated Long Nose Plier With Side Cutter	5
35	Insulated wire Cutter	5

36	Flat Screw Driver	5
37	Level tool	5
38	Hammer of 2 Kg	5
39	Tong Tester Metter	5
40	Calculator	5
41	Micrometer 0 To 1	5
42	Insulated Plier With Side Cutter	5
43	Insulated Long Nose Plier With Side Cutter	5
44	Insulated wire Cutter	5
45	Screw Driver Different Size	5
46	Micrometer 0 To 1	5
47	Calculator	5
48	Different Electrical Item	5
49	Watt meter	5
50	Micrometer/SWG Gauge	5
51	Chisel 8'	5
52	Hammer 2kg	5
53	Insulated Plier With Side Cutter	5
54	Insulated Long Nose Plier With Side Cutter	5
55	Insulated wire Cutter	5
56	Screw Driver Different Size	5
57	Earth Electrode	5
58	Boring Machine	1
59	8 SWG Size Wire	5
60	Bus Bar	5
61	Screw Wrench	5
62	Spener Set	5

3. List of consumable items required		
S. No	Consumable Items	Quantity
1	safety shoes	5
2	Safety Eyes Glass	5
3	safety gloves	5
4	Dungaree	5
5	Phase tester	5
6	Insulated Rubber Mat	5
7	Samad Bond	1 pack
8	Tag Off / Log Off Numbers	5
9	Map OHS Precautions	1
10	Documents Related Drawing	as per requirements
11	Papers for Drawing	15
12	Led Pencil	15
13	Rubber	15
14	Permanent Marker	10
15	Tag Off / Log Off Numbers	15
16	Solution Pak	1 pack
17	joints boxes	15
18	PVC Pipes Different Size	5 length
19	fan boxes	15
20	junctions boxes	15
21	Ball Point	10
22	job related documents	as per requirements
23	Papers for Drawing	15

24	Led Pencil	15
25	Rubber	15
26	switch board	15
27	Distribution Board as per Required	15
28	Drawing Map	1
29	Power Plug (Male, Female)	15
30	Plastic Board	15
31	Light Plug and Box	15
32	Main Supply Cable	2 coil
33	Phase tester	5
34	TV and Telephone Box	15
35	Paper for Documentation	15
36	Light Plug	15
37	Switch Board	15
38	TV Plug with Board	15
39	Marker	15
40	Chisel	15
41	PVC pipes	5 length
42	Switch Board with Box	15
43	PVC elbow	15
44	PVC Socket	15
45	PVC clamp	15
46	Volt Metter	15
47	Paper	15
48	Ballpoint	15
49	Cable According to Specification	different size of cables as per requirement
50	Cable Size Table	5
51	Insulation Tester	5
52	Distribution Board as per Required	5
53	Cable Specifications Table	5
54	Nut Bolt	3 dozen different sizes
55	earth wire	as per requirements
56	Copper Bus Bar	5
57	Conduit Pipe/ PVC Pipe	5 length
58	Nut Bolt	3 dozen


WIRING DIAGRAM FOR GEN ELECTRICAL




National Vocational and Technical Training Commission (NAV TTC)

 5th Floor Evacuee Trust Complex Sector F-5/1, Islamabad.

 +92 51 9044 04

 +92 51 9044 04

 info@navttc.org

 www.navttc.org