



Technical, Entrepreneurship and Vocational Education and Training Authority (TEVETA)

TRADE TEST LEVEL III IN ELECTRICAL ENGINEERING (3 MONTHS)

Record of Practical Assessment

Learner`s name: _____

Learner`s NRC no.: _____

Learner`s TEVETA No.: _____

Institution Name: _____

Institution TVA No.: _____

Assessment Period: _____

Preface

Aim

Practical Invigilation Guidelines

Pre-Assessment

Assessment process explained to the Trainee (✓ if Yes).	☐
Any appeal relating to the outcome of the assessment or the way in which the assessment was conducted shall be made through the TEVETA <u>fair treatment policy</u> as explained to the Trainee (✓ if Yes).	☐

Learner/Trainee Learner/Trainee name: (Print) Learner/Trainee comments:	Assessor/Examiner Assessor/Examiner name: (Print) Assessor/Examiner comments:
I fully understand the assessment and appeals process.	Theory assessment sighted and checked as satisfactory. ☐
Signature: Date:	Signature: Date:

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Task 1: APPLICATION SAFETY MEASURES

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							

	a) Safety precautions to be observed and this should include: • Carrying sharp edged tools • Storage of tools/materials • Use correct tools • Keeping the environment clean • Put on dust coat or work suit • Put on safety boots • Roll up your sleeves • Maintain short hair cut • Hanging tie, bangles and wrist watches not allowed	☐	☐	☐	☐	☐	☐
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Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

Task 2: APPLICATION FASTENING METHODS

No	Activity	Satisfactory			Not satisfactory		
		Attempts			Attempts		
During observation of work activities, the candidate demonstrated that they can:		1st	2 nd	3 rd	1st	2nd	3rd

	a) Apply fastening methods and this should include: • Soldering of married joints • Welding of T-joints • Cramping of tail joints • Bolting of joints	☐	☐	☐	☐	☐	☐
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Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

Task 2: materials specifications

1. Soldering wire
2. soldering powder
3. welding rods

4. bolts
5. nuts
6. cables

Task 2: Tools specifications

1. welding machine
2. climping tool
3. pliers
4. cutter
5. spanner
6. adjustable spanner
7. hammer

Task 3: IDENTIFICATION OF HAND TOOLS

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							

	a) Identify hand tools and this should include • Screwdriver • Hand files • Pliers • Types of chisels • Hammers • Snipes • Fischer wire • Hacksaws • Stripping • Conduit benders • Cramping tools	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

Task 4: IDENTIFICATION OF MEASURING INSTRUMENTS AND MARKING TOOLS

No	Activity	Satisfactory	Not satisfactory
		Attempts	Attempts

During observation of work activities, the candidate demonstrated that they can:		1st	2 nd	3 rd	1st	2 nd	3 rd
	Identify measuring instruments and marking tools and this should include • Spirit level • Measuring tape • Wire gauge • Scriber • Steel rule • Center punch • Compass • Caliper • Micrometer screw gauge • Megger • Multi-meter	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

Task 5: IDENTIFICATION OF DOMESTIC WIRING ACCESSORIES COMPONENTS

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2 nd	3 rd
	During observation of work activities, the						

candidate demonstrated that they can:							
	Identify domestic wiring accessories and this should include - Switches (1G1W, 1G2W, 2G2W, 2G1W, 3G1W, intermediate switch, pull switch, dimmer switch) - Socket outlets (single and Double) - Cooker control unit (3 x 6", 6 x 6") - Geyser switch - Cooker control unit (3 x 6", 6 x 6") - Geyser switch - Lamps (Pin type, Screw type, Fluorescent tube, Sodium vapour lamp, Mercury vapour lamp) - Protective devices (fuse and circuit breaker) - Supply mains intake position - Signalling devices (Siren, Bell) - Layout diagram or site plan read correctly - Material required estimated correctly according to the electrical site plan.						
		☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

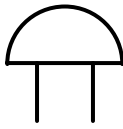
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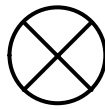
BASIC DOMESTIC SCHEMATIC (INSTALLATION) SYMBOLS

Main control or intake point		Single-pole, one-way switch <i>Note:</i> Number of switches at one point may be indicated	
Main or sub-main switch		Two-pole, one-way switch Three-pole, one-way switch	
Socket outlet (mains) general symbol		Cord-operated single-pole one-way switch	
Switched socket outlet		Two-way switch	
Socket outlet with pilot lamp		Intermediate switch	
Multiple socket outlet Example: for 3 plugs		Lighting point or lamp: general symbol <i>Note:</i> The number, power and type of the light source could be specified	
Push button		Example: Three 40 watt lamps	
Luminous push button		Lamp or lighting point: wall mounted	
Electric bell: general symbol		Emergency (safety) lighting point	
Electric buzzer: general symbol		Lighting point with built in switch	
Time switch		Projector or lamp with reflector	
Automatic fire detector		Spotlight	
		Single fluorescent lamp	

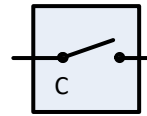
Bell



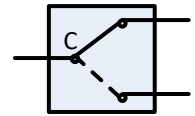
Lamp



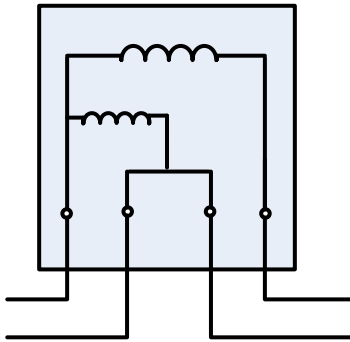
1G1W Switch



1G2W Switch



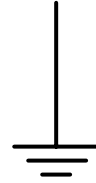
Energy Meter



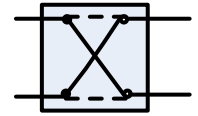
Circuit Breaker



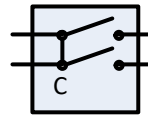
Earth



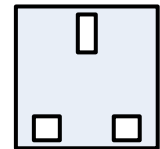
Intermediate Switch



2G1W Switch



Single socket



Task 6: IDENTIFICATION OF DOMESTIC WIRING ACCESSORIES SYMBOLS

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	a) Identify domestic wiring accessories and this should include - Switches (1G1W, 1G2W, 2G2W, 2G1W, 3G1W, intermediate switch, pull switch, dimmer switch) - Socket outlets (single and Double) - Cooker control unit (3 x 6", 6 x 6") - Geyser switch - Cooker control unit (3 x 6", 6 x 6") - Geyser switch - Lamps (Pin type, Screw type, Fluorescent tube, Sodium vapour lamp, Mercury vapour lamp) - Protective devices (fuse and circuit breaker) - Supply mains intake position - Signalling devices (Siren, Bell) - Layout diagram or site plan read correctly - Material required estimated correctly according to the electrical site plan.	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....
Signed:..... Signed:.....
Date:..... Date:.....

Task 7: INTERPRETING DOMESTIC ELECTRICAL DRAWING SYMBOLS

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	Interpret domestic electrical drawing symbols and this should include : - Switches (1G1W, 1G2W, 2G2W, 2G1W, 3G1W, intermediate switch, pull switch, dimmer switch) - Socket outlets (single and Double) - Cooker control unit (3 x 6", 6 x 6") - Geyser switch - Cooker control unit (3 x 6", 6 x 6") - Geyser switch - Lamps (Pin type, Screw type, Fluorescent tube, Sodium vapour lamp, Mercury vapour lamp) - Protective devices (fuse and circuit breaker) - Supply mains intake position - Signalling devices (Siren, Bell) - Layout diagram or site plan read correctly - Material required estimated correctly according to the electrical site plan.	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

Task 8: CARRYING OUT CONDUIT WORKS

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can							
	a) Carry out conduit works and this should include: • Install and terminate conduit pipes correctly using couplings, female and male bushes • Make 90° bends without kinks • Make offsets, bushes and couplings • Fix saddles • Prepare the wall for installation of conduit pipes ▪ Wall chiselled ▪ Wall plugs installed ▪ Use of Grinding machine ▪ Use of Drilling machine • Use Spirit level for positioning • Plaster wall according to the required standard	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

TASK 9: MATERIALS

1. 20mm²PVC conduit pipe
2. 20mm² PVC male and female bushes
3. Saddles
4. Round looping boxes
5. 90° bend PVC
6. Plugs
7. Drilling machine
8. Spirit level
9. Chisel
10. Hammer
11. tape

Task 9: MOUNTING OF THE ELECTRICAL METER BOX

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	a) Mount an electrical meter box Install the meter box to the required specification and this should include - Energy meter 60A MCB - Lightning arrester Install earthing and this should include - Earth pit - Earth rod - charcoal - salt	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

TASK 10: MATERIALS

1. 1 X 5A MCB
2. 1 X OVERLOAD RELAY
3. Energy meter
4. 60A MCB
5. Lightning arrester
6. Earth rod
7. charcoal

Task 10: MOUNTING OF THE DISTRIBUTION BOX

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can							
	Mount a distribution box and this should include: - meter box - distribution box 60A MCB mains 30A MCB cooker 30A MCB gyser 15A MCB socket outlets 5A MCB lighting - Neutral block - Earth block	☐	☐	☐	☐	☐	☐

Examiner`s comments:

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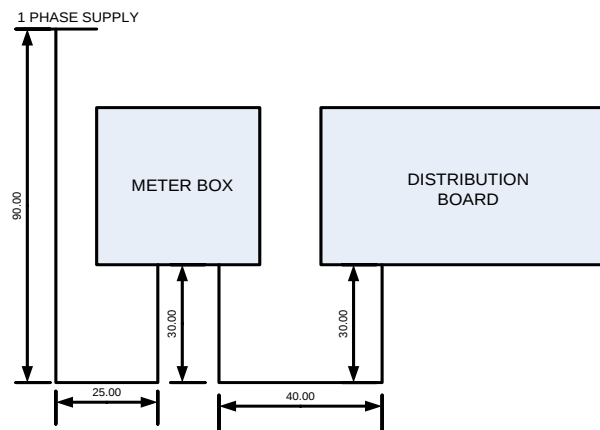
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TASK 10: MATERIAL SPECIFICATIONS

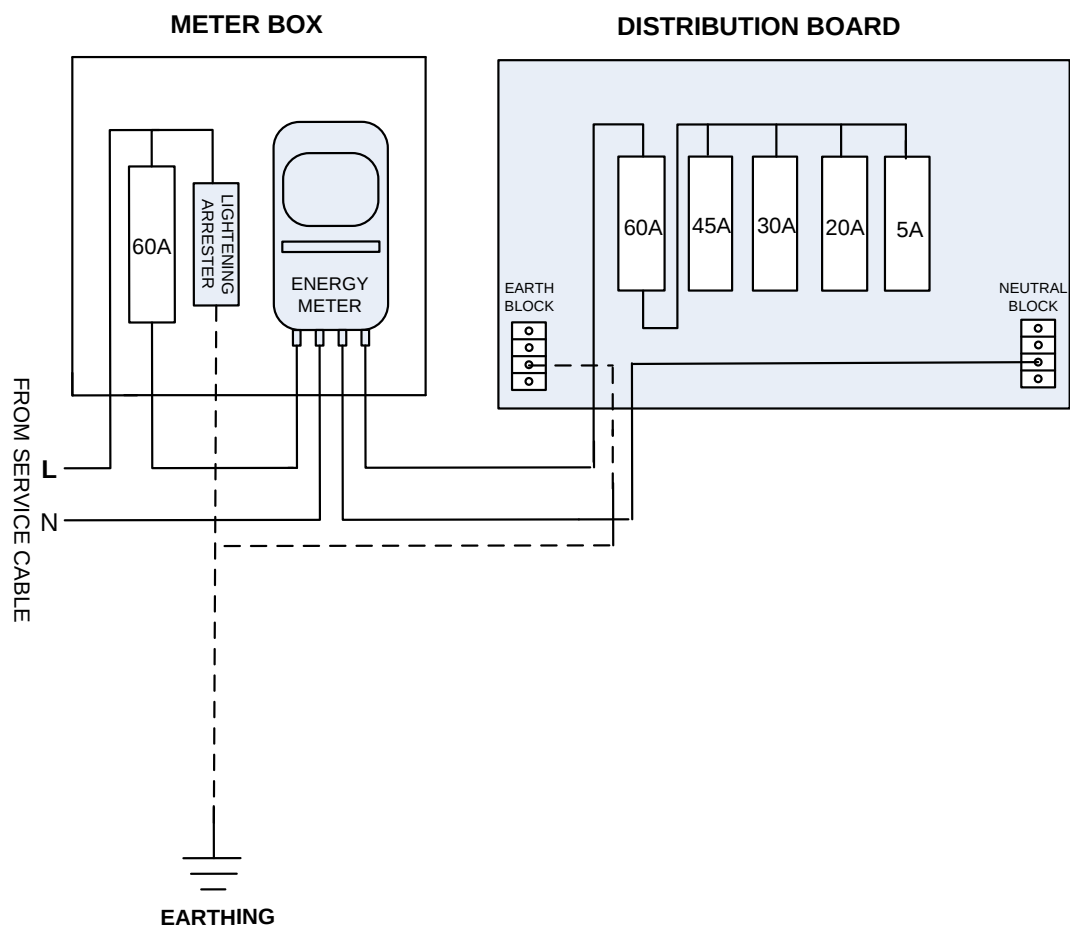
1. 1 x 60A MCB
2. 2 x 30A MCB
3. 1 x 15A MCB
4. 1 x 5A MCB
5. 1 X Neutral block
6. 1 x Earth block

WIRING OF METER BOX AND DISTRIBUTION BOX

LAYOUT DIAGRAM



NOTE: ALL DIMENSIONS ARE IN CM



Task 11: INSTALLATION OF LIGHTING CIRCUITS

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	a) Install a one way lighting circuit according to layout and wiring diagram and this should include ▪ Correct cable size used ▪ Correct MCB rating used ▪ Correct switch ▪ Lamp holder ▪ Bulb • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test	☐	☐	☐	☐	☐	☐
	b) Install a two way lighting circuit according to layout and wiring diagram and this should include ▪ Correct cable size used ▪ Correct MCB rating used ▪ Two 2-way switches ▪ Lamp holder ▪ Bulb • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test	☐	☐	☐	☐	☐	☐

	c) Install an intermediate lighting circuit according to layout and wiring diagram and this should include ▪ Correct cable size used ▪ Correct MCB rating used ▪ Two 2-way switches ▪ Intermediate switch ▪ Lamp holder ▪ Bulb • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test	☐	☐	☐	☐	☐	☐
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Examiner`s comments:

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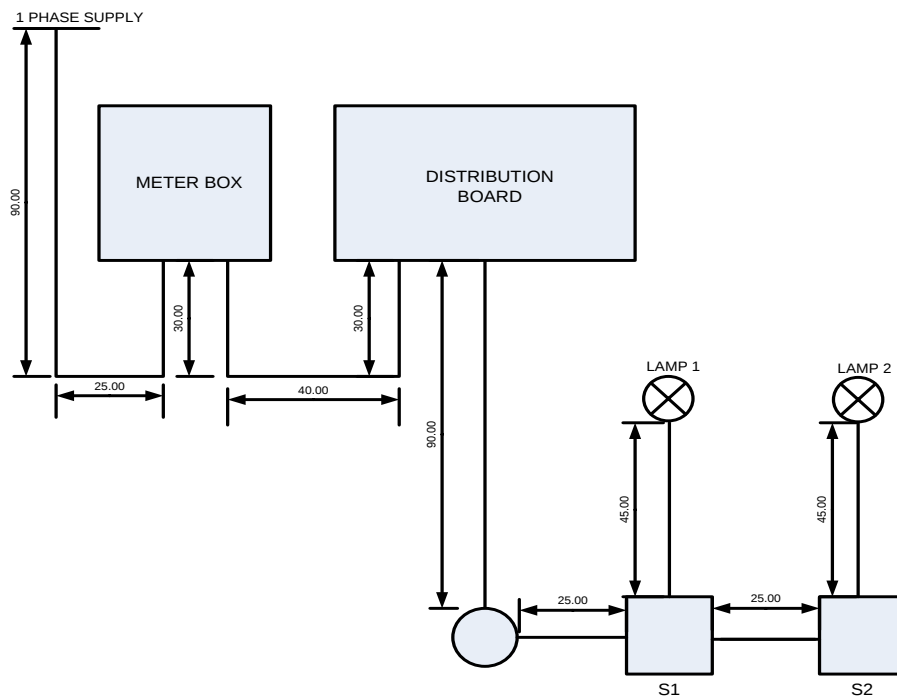
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TASK11A: MATERIAL SPECIFICATIONS:

1. 1x5A MCB
2. 1.5mm² red and black
3. 1x1G1W switch
4. 1xLamp

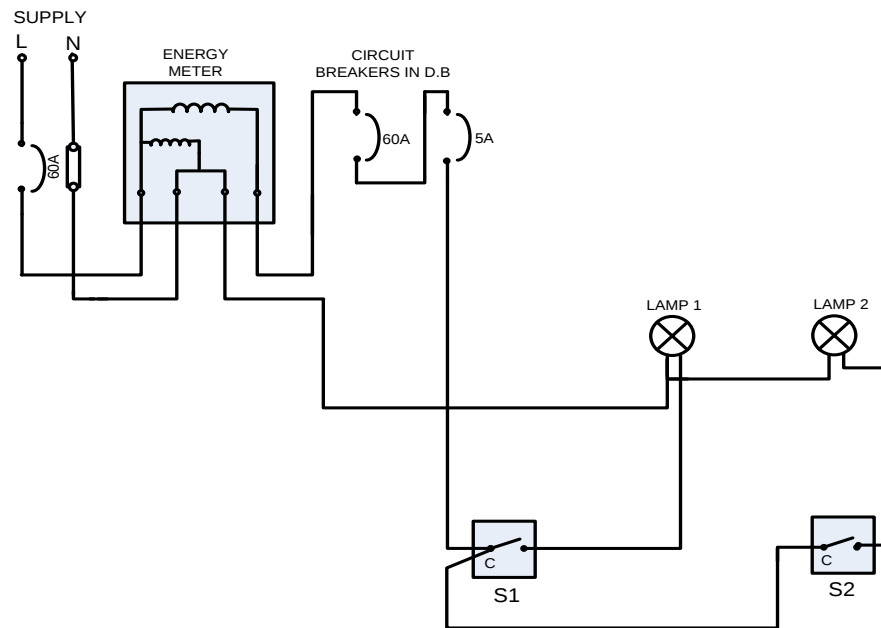
a) ONE WAY LIGHTING CIRCUIT

LAYOUT DIAGRAM



NOTE: ALL DIMENSIONS ARE IN CM

WIRING DIAGRAM

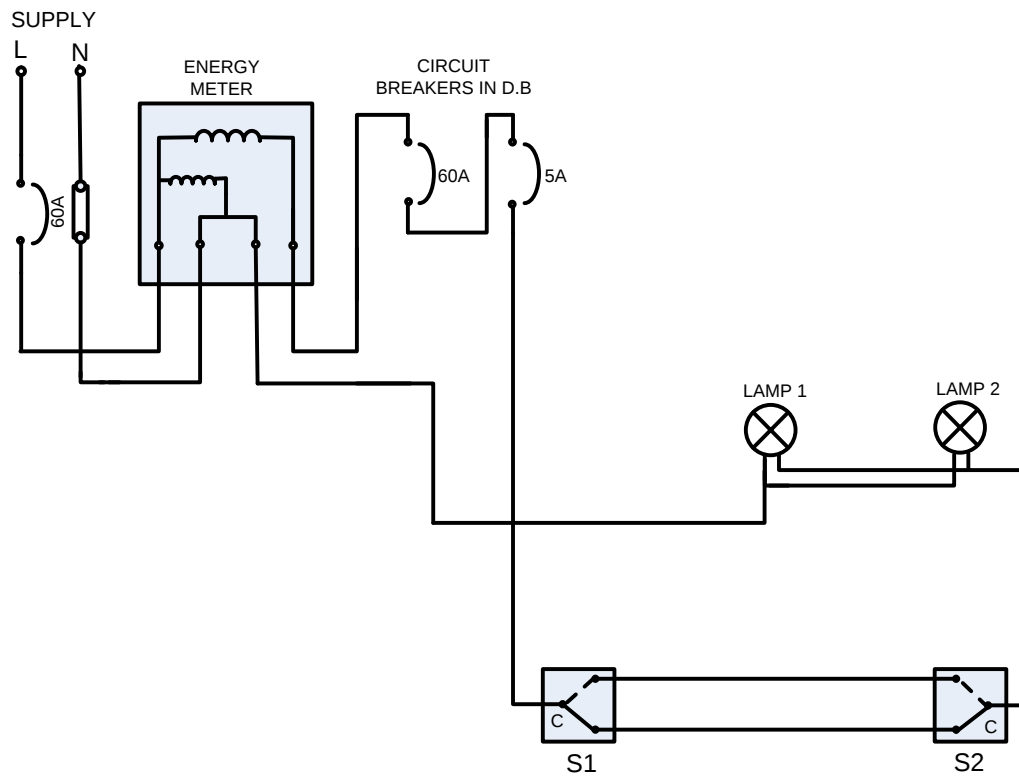


TASK11b: MATERIAL SPECIFICATIONS:

1. 1x5A MCB
2. 1.5mm² red and black
3. 1x1G2W switch
4. 1xLamp

TWO WAY LIGHTING CIRCUIT

WIRING DIAGRAM

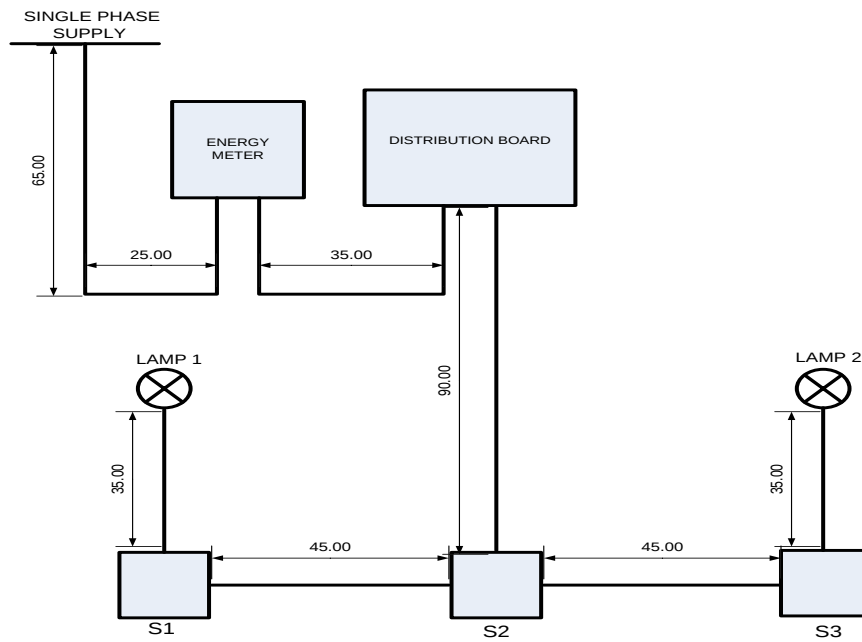


TASK 11 C: MATERIAL LIST:

1. 1x5A MCB
2. 1.5mm² red and black
3. 2x1G2W switch
4. Intermediate switch
5. 1xLamp
6. multimeter

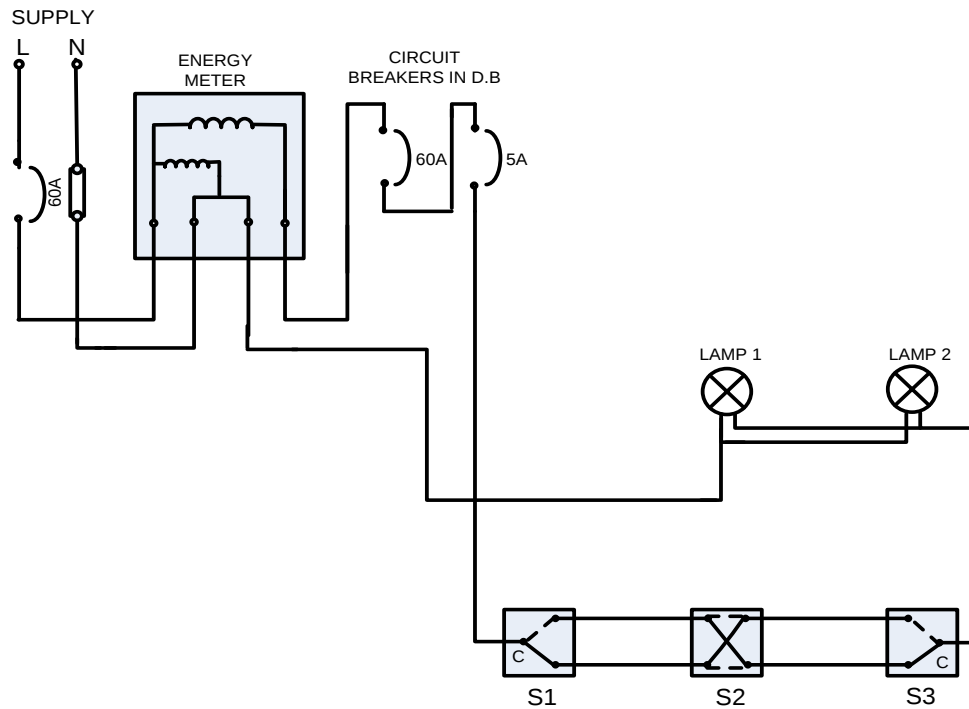
INTERMEDIATE CIRCUIT

LAYOUT DIAGRAM



NOTE: ALL DIMENSIONS ARE IN CM

WIRING DIAGRAM



Task 12: INSTALLATION OF SOCKET OUTLET CIRCUIT

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	a) Install radial socket outlets circuit according to layout and wiring diagram and this should include: ▪ Correct cable size used ▪ Correct MCB rating used ▪ Correct socket outlets • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test	☐	☐	☐	☐	☐	☐
	b) Install ring socket outlets circuit correctly according to layout and wiring diagram and this should include: ▪ Correct cable size used ▪ Correct MCB rating used ▪ Socket outlets	☐	☐	☐	☐	☐	☐
	(c)Carry out tests and this should include • polarity • continuity • insulation resistance	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

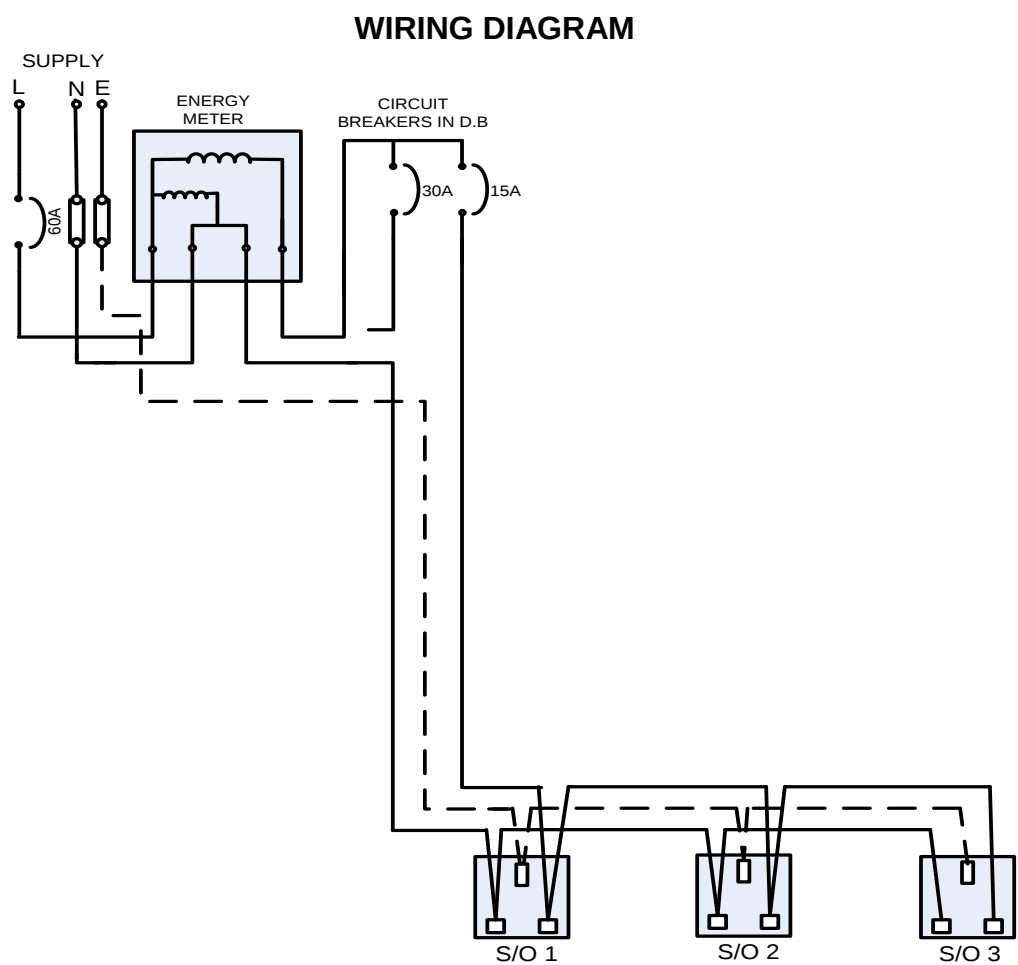
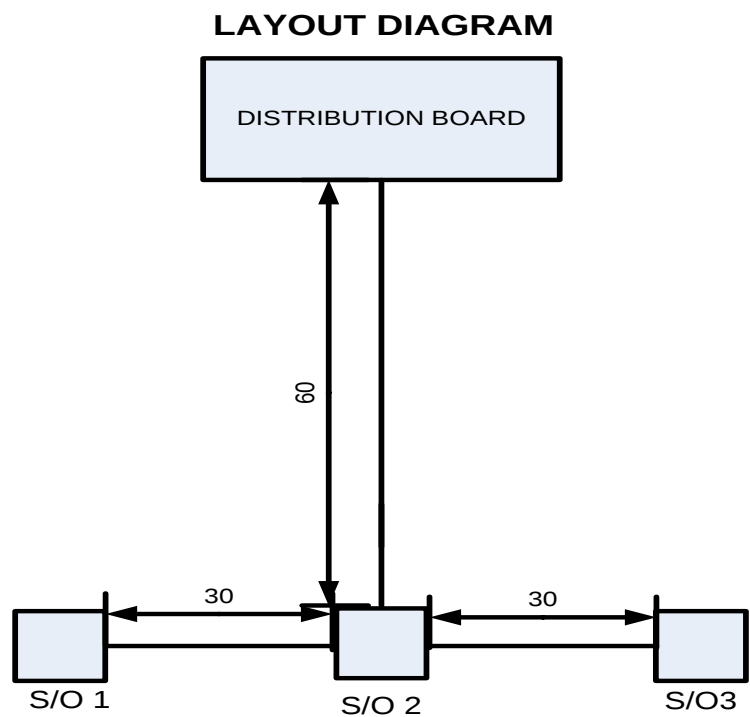
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TASK12A: MATERIAL SPECIFICATIONS::

1. 1x15A MCB
2. 2.5mm² red, black and green
3. Socket outlets
4. multimeter

a) **RADIAL SOCKET OUTLET CIRCUIT**

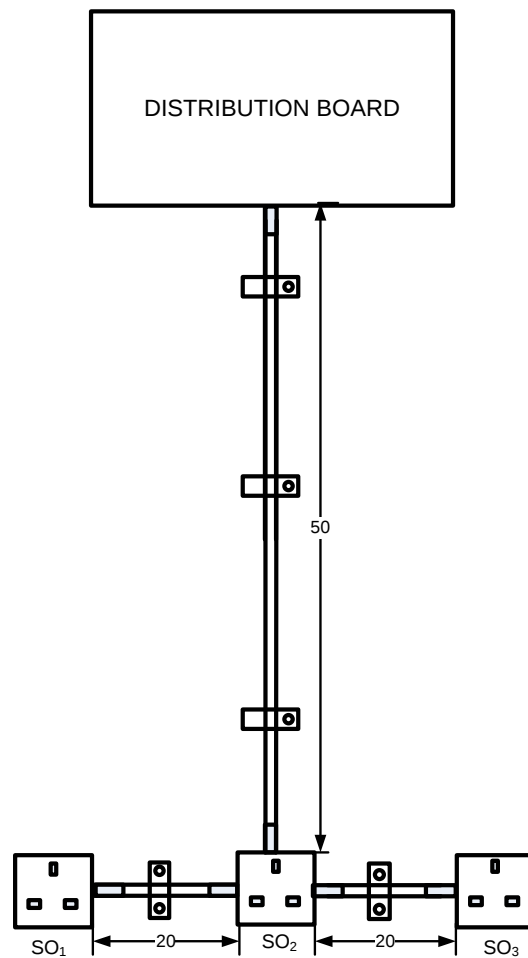


TASK12b: MATERIAL LIST:

1. 1x15A MCB
2. 2.5mm² red, black and green
3. Socket outlets
4. multimeter

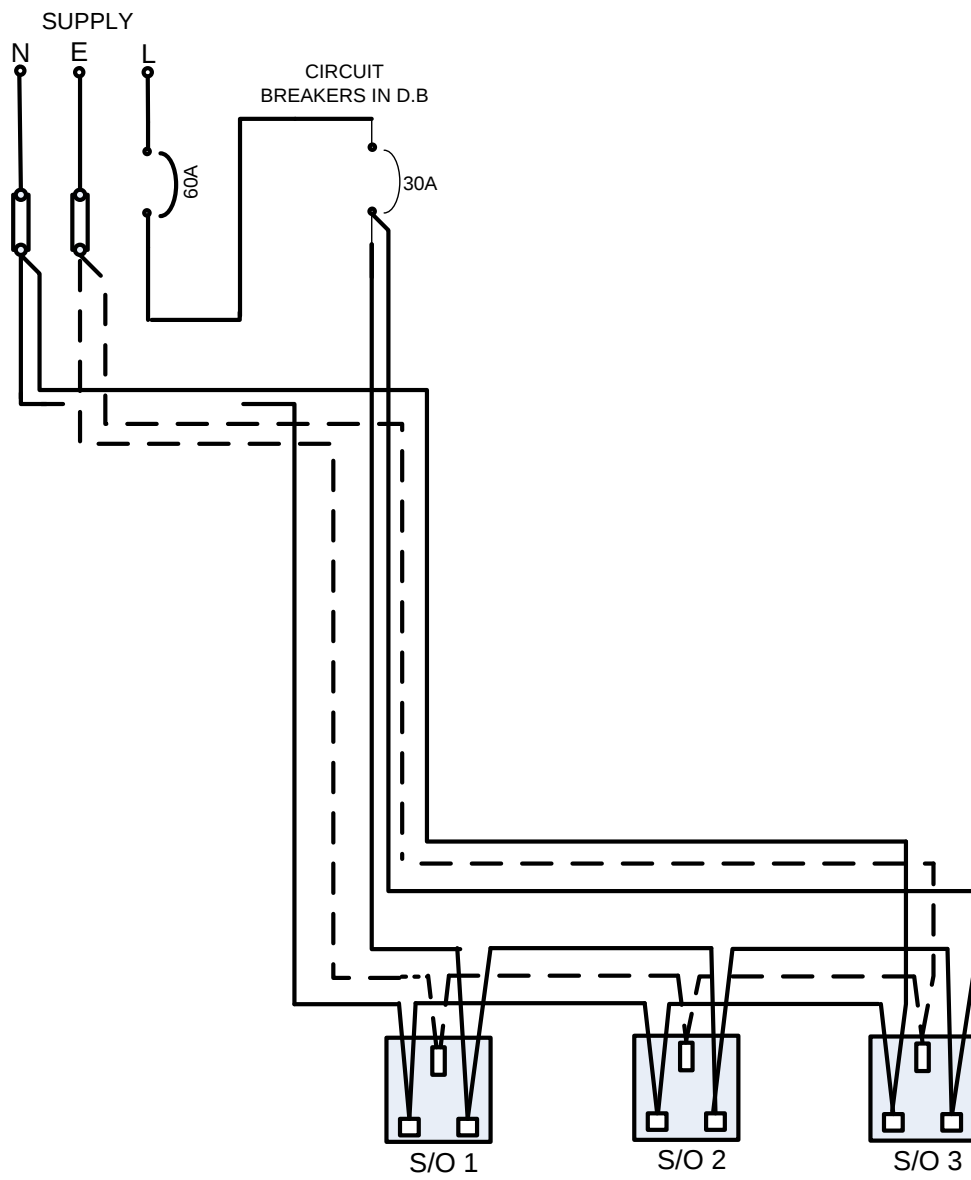
b) RING SOCKET OUTLET CIRCUIT

LAYOUT DIAGRAM



NB: All dimensions are in centimetres and not according to scale

WIRING DIAGRAM



Task 13: INSTALLATION OF GEYSER AND COOKER CONTROL UNIT CIRCUIT

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	c) Install geyser circuit according to layout and wiring diagram and this should include ▪ Correct cable size used ▪ Correct MCB rating used ▪ Geyser switch • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test	☐	☐	☐	☐	☐	☐
	b) Install cooker control unit circuit according to layout and wiring diagram and this should include ▪ Correct cable size used ▪ Correct MCB rating used ▪ Cooker control unit	☐	☐	☐	☐	☐	☐
	(c) Carry out tests and this should include ▪ polarity ▪ continuity ▪ insulation resistance	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

Date:..... Date:.....

Task 14: INSTALLATION OF GEYSER AND COOKER CONTROL UNIT CIRCUIT

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2 nd	3 rd
	During observation of work activities, the candidate demonstrated that they can:						
	Install geyser circuit correctly according to layout and wiring diagram and this should include ▪ Correct cable size used ▪ Correct MCB rating used ▪ Geyser switch • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test Install cooker control unit circuit according to layout and wiring diagram ▪ Correct cable size used ▪ Correct MCB rating used ▪ Cooker control unit • Carry out polarity test • Carry out continuity test • Carry out insulation resistance test	☐	☐	☐	☐	☐	☐

Examiner`s comments:

Examiner Name:..... Learner`s Name:.....

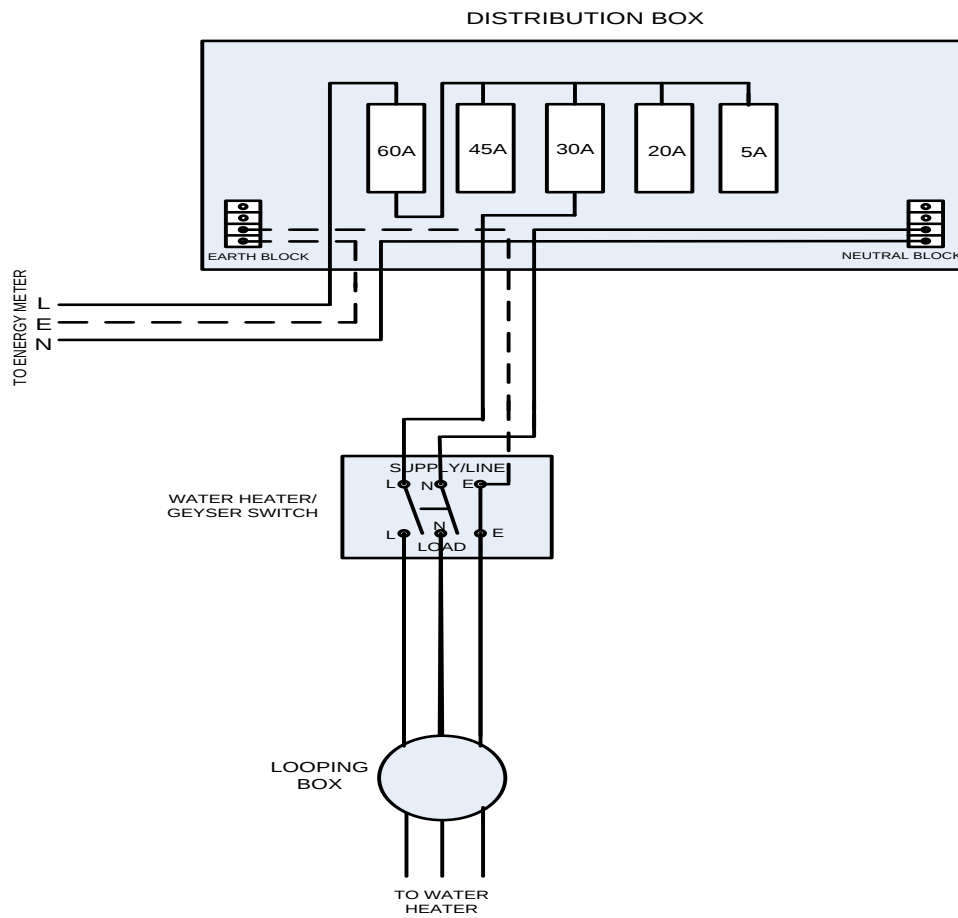
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TASK14A: MATERIAL LIST:

1. 1x30A MCB
2. 4mm² red, black and green
3. geyser
4. multimeter

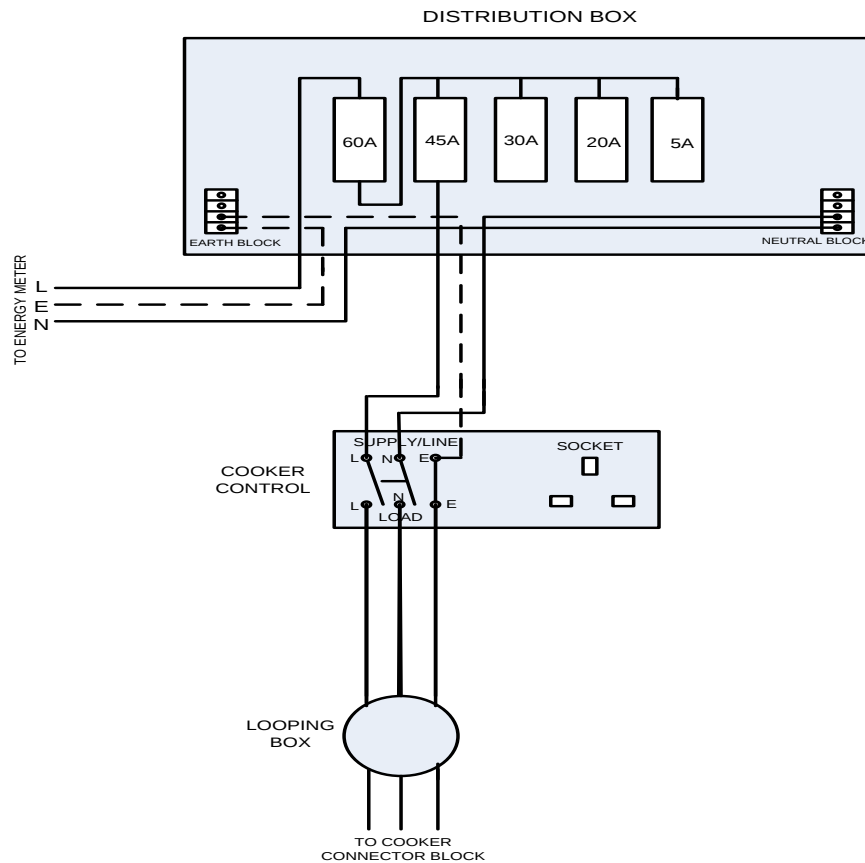
a) **GEYSER CIRCUIT**



TASK 14b: MATERIAL SPECIFICATION:

1. 1x45A MCB
2. 4mm² red, black and green
3. Cooker control unit
4. Multimeter

b) COOKER CONTROL UNIT CIRCUIT

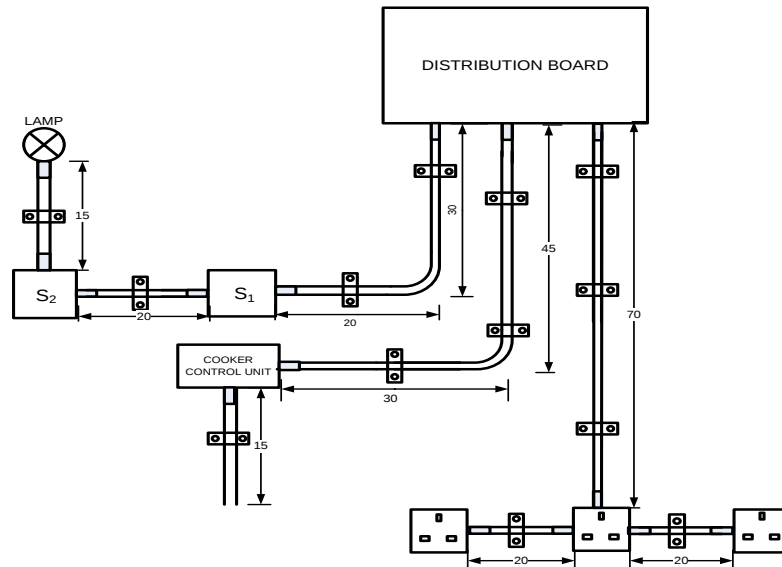


TASK14c: MATERIAL SPECIFICATIONS:

1. 1x60A MCB
2. 2x30A MCB
3. 5A MCB
4. 2x1G2W
5. 1xcooker control unit
6. 3xsocket outlet
7. Lamps
8. 1xneutral block
9. 1xearth block
10. 1.5mm² red and black
11. 2.5mm² red, black and green
12. 4mm² red, black and green
13. Multi-meter

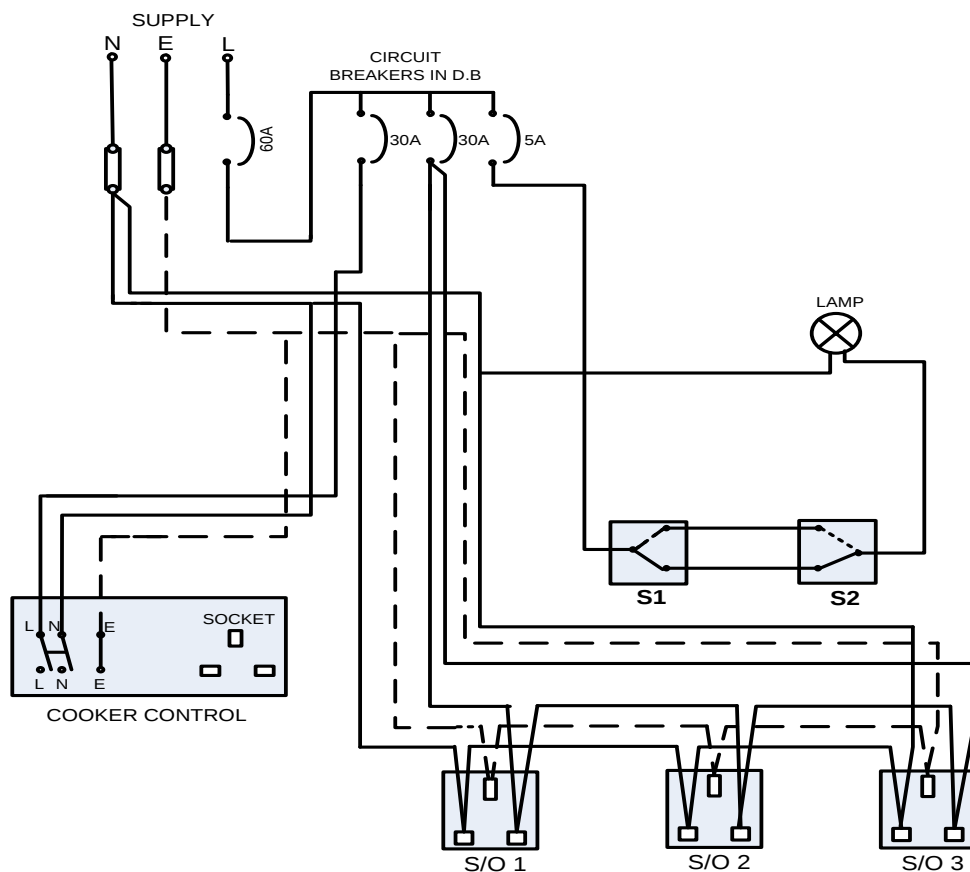
(C) PRACTICAL INCORPORATING THE WIRING OF LIGHTING, SOCKET OUTLETS AND COOKER CONTROL UNIT

LAYOUT DIAGRAM



NB: All dimensions are in centimetres and not according to scale

CIRCUIT DIAGRAM



Task 15: EARTHING OF INSTALLATION

No	Activity	Satisfactory Attempts			Not satisfactory Attempts		
		1st	2 nd	3 rd	1st	2nd	3rd
During observation of work activities, the candidate demonstrated that they can:							
	a) Install earthing correctly and this should include • Digging earth pit • Identifying and applying the earth electrode (rod, plate or mat, tape or strip) • Putting alternate layers of charcoal and salt correctly • Using correct cable size	☐	☐	☐	☐	☐	☐
	b) Earthing method carried out according to layout and wiring diagram and this should include • Correct cable size used • T.T earthing • TNC-S or protective or multiple earthing (PME)	☐	☐	☐	☐	☐	☐
	(c) Carry out tests and this should include • polarity test • continuity test • insulation resistance test	☐	☐	☐	☐	☐	☐

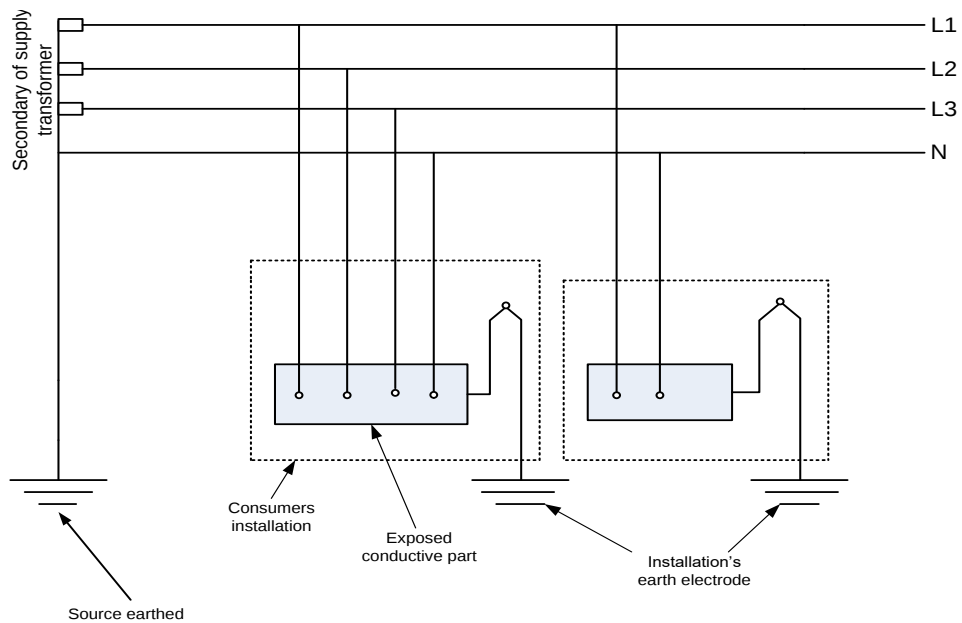
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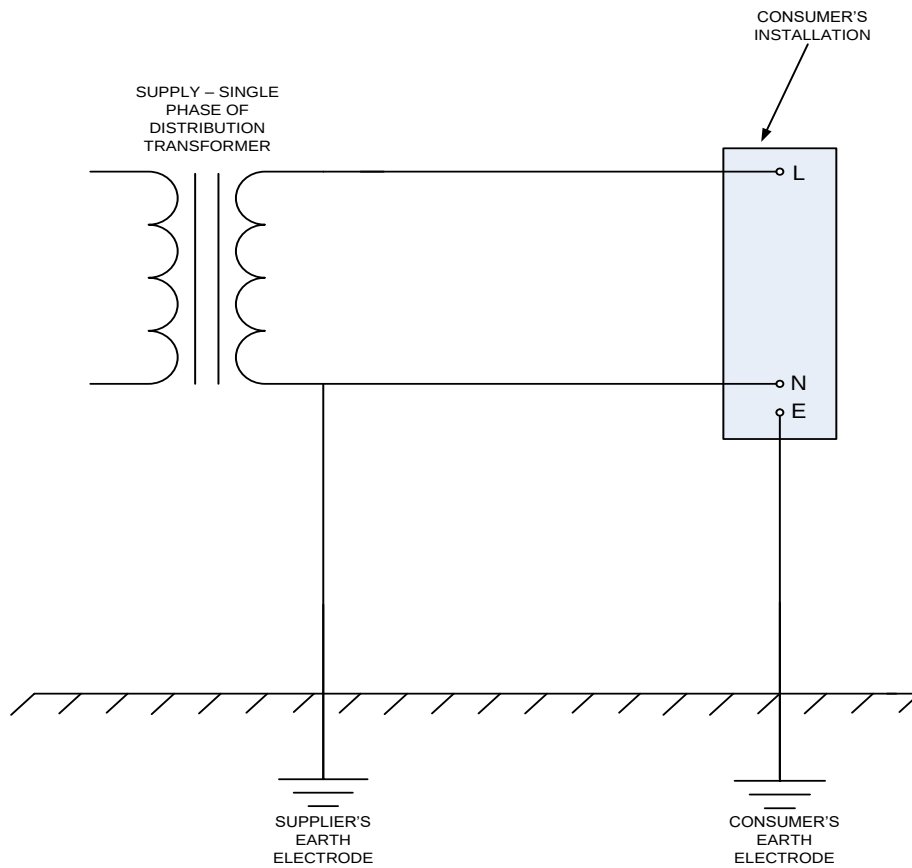
Examiner Name:..... Learner`s Name:.....

Signed:..... Signed:.....

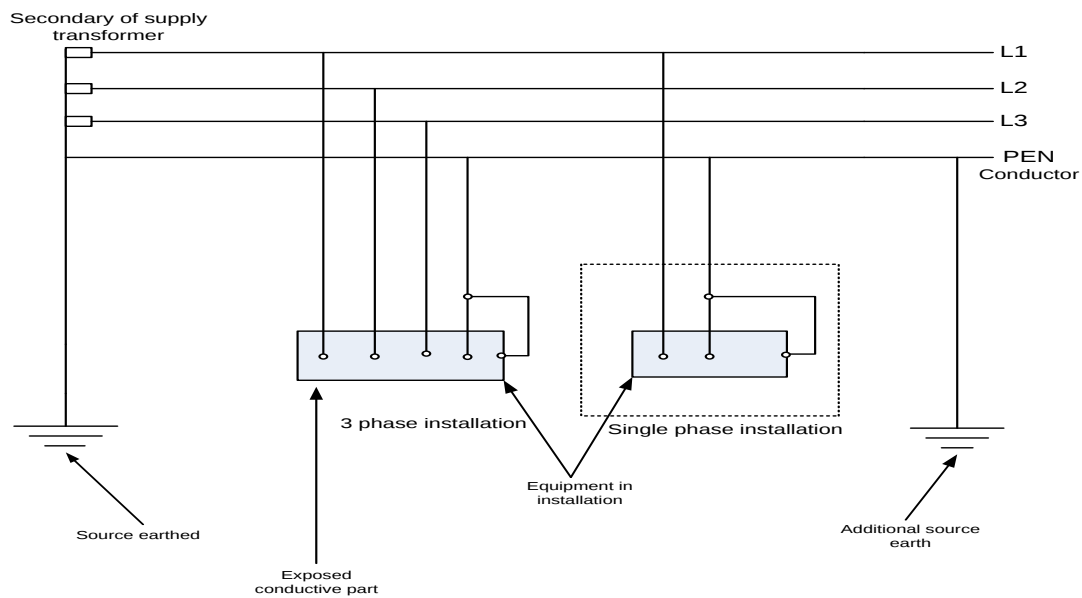
Date:..... Date:.....

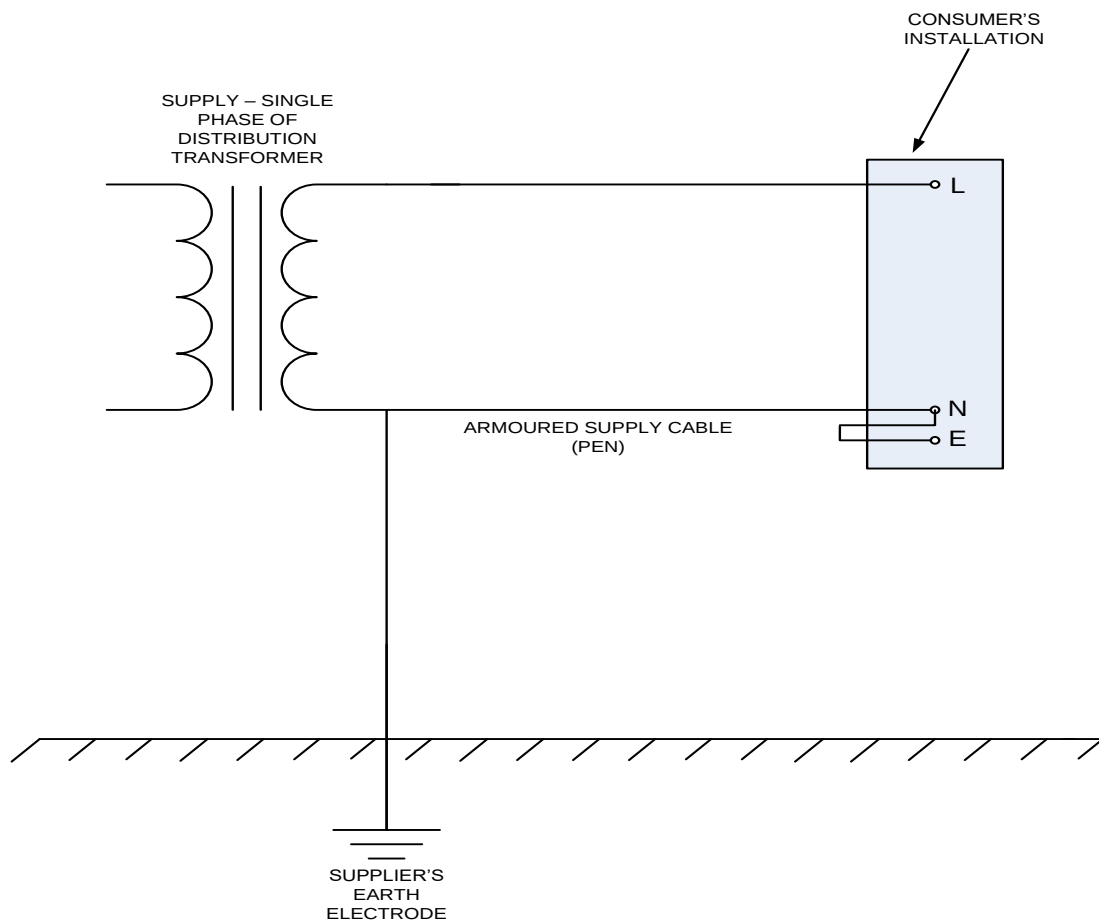
TT SYSTEM





TN-C-S SYSTEM OR PROTECTIVE MULTIPLE EARTHING (PME)





FINAL PRACTICAL ASSESSMENT SUMMARY

Practical assessment summary	Satisfactory	Not Satisfactory
APPLICATION OF SAFETY MEASURES	☐	☐
APPLICATION OF FASTENNING METHODS	☐	☐
IDENTIFICATION OF HAND TOOLS	☐	☐
IDENTIFICATION OF MEASURING INSTRUMENTS AND MARKING TOOLS	☐	☐
IDENTIFICATION OF DOMESTIC WIRING ACCESSORIES	☐	☐
INTERPRETING DOMESTIC ELECTRICAL SYMBOLS	☐	☐
CARRING OUT CONDUIT WORKS	☐	☐
MOUNTING OF THE ELECTRICAL METER BOX	☐	☐
MOUNTING OF THE DISTRIBUTION BOX	☐	☐
INSTALLATION OF LIGHTING CIRCUITS	☐	☐
INSTALLATION OF SOCKET OUTLET CIRCUITS	☐	☐
INSTALLATION OF GEYSER AND COOKER CONTROL UNIT	☐	☐
EARTHING OF INSTALLATION	☐	☐
INTERPRETING BASIC INDUSTRIAL CONTROL AND POWER CIRCUIT	☐	☐

SYMBOLS		
DESIGNING BASIC INDUSTRIAL POWER CIRCUITS	☐	☐
INSPECTION OF INDUSTRIAL CONTROL AND POWER CIRCUITS	☐	☐
TESTING OF INDUSTRIAL CONTROL AND POWER CIRCUITS	☐	☐
INSTALLATION OF DIRECT ON LINE CIRCUIT	☐	☐
INSTALLATION OF A DIRECT ON LINE LOCAL AND REMOTE CIRCUIT	☐	☐
INSTALLATION OF A DIRECT ONLINE JOGGING/INCHING CIRCUIT	☐	☐
INSTALLATION OF A DOOR BELL RING CIRCUIT	☐	☐
INSTALLATION OF A STAR-DELTA SEMI AUTOMATIC CONTROL AND POWER CIRCUIT	☐	☐
MAINTAINING INDUCTION MOTORS	☐	☐
INSTALLING A STAR-DELTA LOCAL AND REMOTE CIRCUIT	☐	☐
INSTALLING A STAR-DELTA FORWARD AND REVERSE CONTROL AND POWER CIRCUIT	☐	☐
INSTALLATION OF A SEMI AUTOMATIC CONTROL AND POWER CIRCUIT	☐	☐
INSTALLTION OF A SEQUENTIAL CONTROL	☐	☐

AND POWER CIRCUIT		
INSTALLATION OF A TRAFFIC LIGHT CONTROL CIRCUIT	☐	☐
MAINTAINING A DC MACHINE	☐	☐
MAINTAINING A SYNCHRONOUS MACHINE	☐	☐

ASSESSMENT OUTCOME

Competent

☐

Not Competent

☐

Learner/Trainee	Assessor/Examiner
Learner/Trainee name: _____ (Print)	Assessor/Examiner name: _____ (Print)
Learner/Trainee comments:	Assessor/Examiner comments:
Signature: _____ Date: _____	Signature: _____ Date: _____