

071305T4ELC

ELECTRONICS TECHNOLOGY LEVEL 5

ENG/OS/ET/CR/01/5/A

Perform Electrical Installation

Nov/Dec 2024



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

PRACTICAL ASSESSMENT

Time: 4 HOURS

INSTRUCTIONS TO CANDIDATE:

1. You are required to perform the following tasks

TASK 1: Install the P.V solar system and two final circuits

TASK 2: Mount and solder an amplifier circuit

2. You have been provided with the following resources for the practical tasks:

- *120 W solar module*
- *12V 100Ah lead acid battery*
- *Charge controller at least 8A*
- *Inverter about 300W*
- *Consume control unit CCU
(4 way)*
- *Switched socket outlets*
- *Incandescent Bulbs*
- *Straight bulb holder*
- *One gang One way switch*
- *Single Shallow Patress boxes*
- *6/10A circuit breaker*

- 32A Circuit breaker
- Deep Patress boxes
- Junction box
- 1.5mm² PVC single core cable R/B/G
- 2.5mm² PVC single core cable R/B/G
- 4.0mm² PVC stranded cable R/B/G
- PVC Trunks
- Wooden screws (assorted)
- Buckle clips
- Tack nails (assorted)
- Stripboard 14.5cm x 6.5cm
- 400 mm x 400mm wooden board
- 1.2m x1.2m vertical wooden board
- Electrolytic Capacitors 47 μ F 25v
- Transistor (BC108)
- Resistors 10k Ω , 3.3k Ω , 2.2k Ω and 560 Ω (1/4 watt (250 mW))
- 12v DC Power supply
- Speaker 0.5W 8 Ω
- Connecting wires
- Solder sucker
- Soldering gun
- Side cutters
- Wire Stripper
- Soldering gun stand
- Multimeter
- Pliers
- Testers
- Screw drivers-flat/star

Figure 1(a) shows the Layout for the P.V solar installation equipment. Use the layout to:

- i) Draw the wiring diagram for the P.V solar installation equipment
- ii) Install the P.V solar system

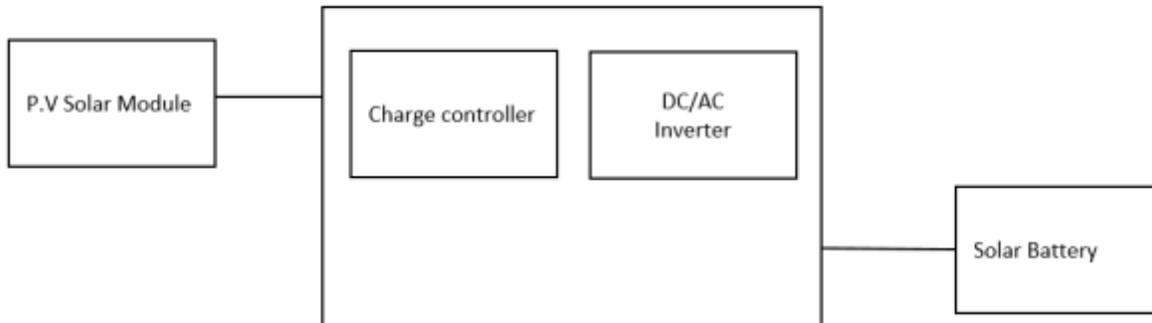


Figure 1(a).

Figure 1(b) shows the layout of two final circuits. use the layout (figure 1b) to:

- i. Draw the wiring diagram such that the:
 - a. Lamps are controlled from one position
 - b. Socket outlets are wired in ring
- ii. Install the circuits using PVC mini-trunking wiring system
- iii. Test the circuit operation using the installed solar-equipment in 1 (a)

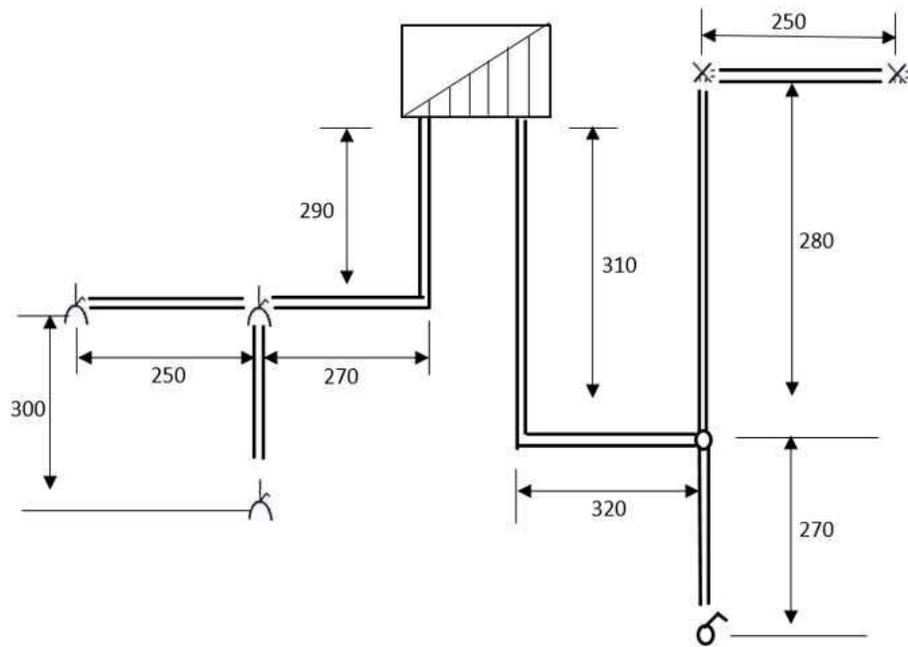


Figure 1(b)

Figure 2 shows an amplifier circuit. Use the amplifier circuit to:

- i) Mount and solder the circuit on a copper stripboard
- ii) Power the circuit and measure voltages at test points, TP1, TP2 and TP3

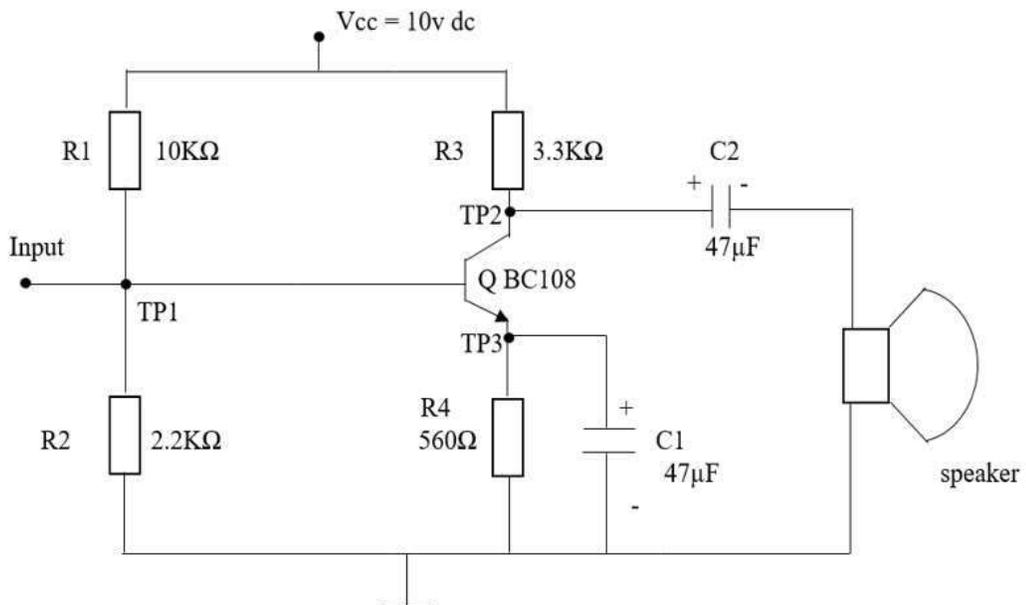


Figure 2