MODULE II

ELECTRICAL INSTALLATION TECHNOLOGY

ENG/OS/EI/CR/02/4/MB

PERFORM BELL AND ALARM INSTALLATION

SEPTEMBER-NOVEMBER 2025

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

PRACTICAL ASSESSMENT

INSTRUCTIONS TO THE ASSESSOR:

1. This assessment is to take place in the prescribed order as arranged in the tool.
2. Capture clear **photographs** and/or **videos** of each candidate's work as they perform the tasks and label all media files with: Candidate Registration Number, Unit Code, Practical Session Number, and Date.
3. Record candidate scores and assessor remarks in the observation checklists for each session.
4. Store all completed checklists, media files, and candidate drawings in a secure digital/physical folder per candidate.
5. All measurements are in millimeters (mm)

CANDIDATE & ASSESSOR DETAILS

Candidate Name:	**CDACC Reg. No.:**
Assessor Name:	**Assessor ID Number:**

PRACTICAL BRIEF

In this practical, you will be required to demonstrate competence in installing bell and alarm systems based on the provided drawing. The assessment will involve hands-on sessions and an oral assessment.

SESSION 1 (4 HOURS): INSTALLATION OF BELL AND ALARM SYSTEM

Assessment Date:	
Assessment Venue:	

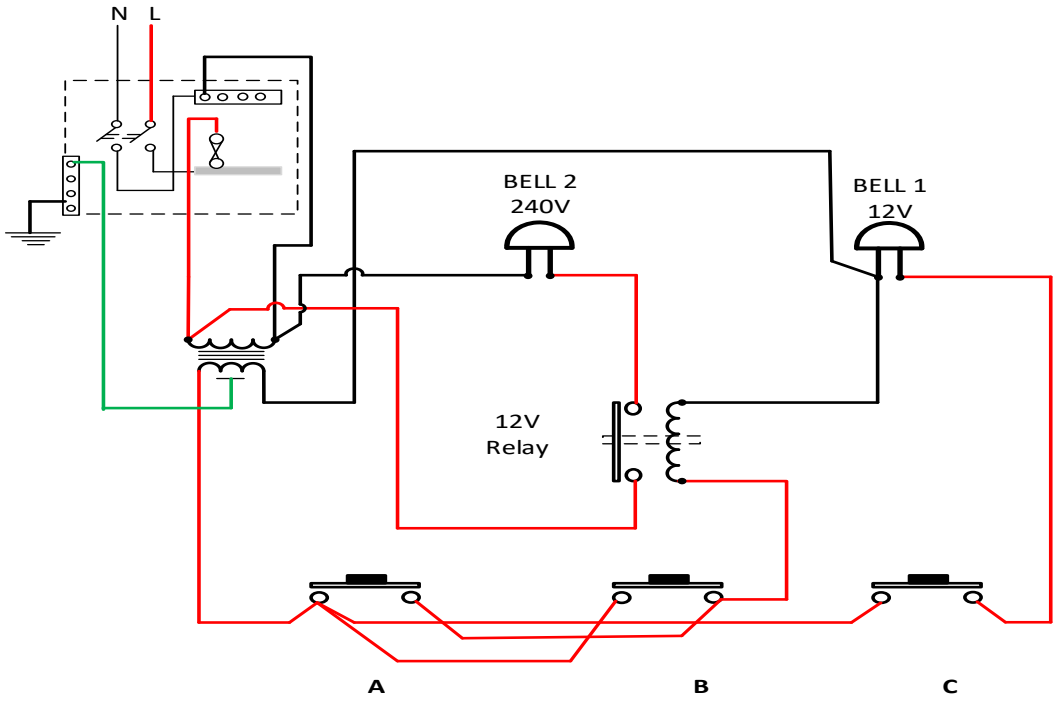
PRACTICAL CHECKLIST

No.	Items of Evaluation	Max Marks	Awarded
1.	Wore PPEs as per OSHA and EHS standards • Helmet (*Award 1 mark or zero*) • Safety boot (*Award 1 mark or zero*) • Apron/overall (*Award 1 mark or zero*)	 1 1 1	
2.	Drew the wiring diagram • Push buttons A and B control bell 2 (*Award 3 marks or zero*) • Push button C controls bell 1 (*Award 2 marks or zero*)	 3 2	
3.	Installed bell and alarm layout • Dimensions ±2mm (*Award 2 marks or zero*) • Fixed components i. Firmness (*Award 1 mark or zero*)	 2 1	

	ii. Level (*Award 1 mark or zero*) • Fixed cables i. Horizontal runs (2) (*Award 1/2 mark or zero*) ii. Vertical runs (6) (*Award 1/2 mark or zero*) • Correct circuit connection and cable terminations (firm, folded & twisted) at bell push i. Consumer unit (*Award 1 mark or zero*) ii. Push buttons A and B control bell 2 (*Award 1 x 3 marks or zero*) iii. Push button C controls bell 1 (*Award 1 x 2 marks or zero*) • Earthing on transformer (*Award 1 mark or zero*) • Colour coding of cables (*Award 2 marks or zero*)	1 1 3 1 3 2 1 2	
	Total Session 1	25	
REMARKS:			

NB: Photos and videos should be taken as the candidate performs item 3

WIRING DIAGRAM SESSION 1:



SESSION 2 (4 HOURS): TEST AND MAINTAIN BELL AND ALARM SYSTEM

Assessment Date:	
Assessment Venue:	

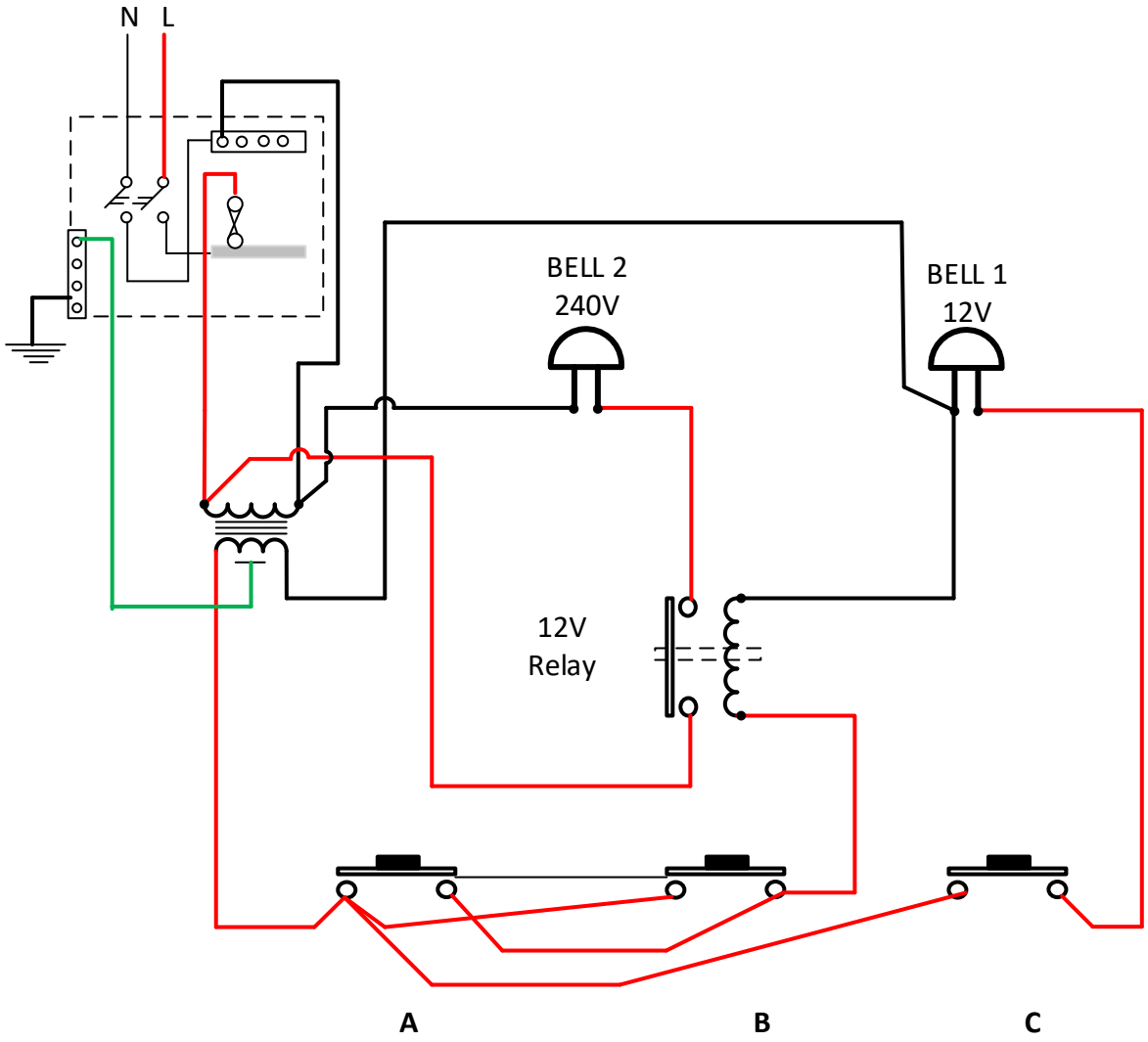
PRACTICAL CHECKLIST

No.	Items of Evaluation	Max Marks	Awarded
1.	Wore PPEs as per OSHA and EHS standards • Helmet (*Award 1 mark or zero*) • Safety boot (*Award 1 mark or zero*) • Apron/overall (*Award 1 mark or zero*)	 1 1 1	
2.	Drew a wiring diagram • B controls the bell 1(*Award 2 marks or zero*) • A and C controls the bell 2 (*Award 2 marks or zero*)	 2 2	
3.	Performed visual inspection • Manuals accessibility (*Award 1 mark or zero*) • Protective covers are intact (*Award 1 mark or zero*) • Labelling of components (*Award 1 mark or zero*) • Components are clean and free from dust (*Award 1 mark or zero*) • Physical damage (*Award 1 mark or zero*)	 1 1 1 1 1	
4.	Performed the tests: • Continuity test (*Award 2 marks or zero*) • Polarity test (*Award 2 marks or zero*) • Earth resistance test (*Award 2 marks or zero*) • Insulation resistance test (*Award 2 marks or zero*)	 2 2 2 2	

5.	Recorded test results • Continuity test (*Award 1 marks or zero*) • Polarity test (*Award 1 marks or zero*) • Earth resistance test (*Award 1 marks or zero*) • Insulation resistance test (*Award 1 marks or zero*)	 1 1 1 1	
6.	Performed system functionality • Bell 1 (*Award 3 marks or zero*) • Bell 2 (*Award 2 marks or zero*)	 3 2	
7.	Performed housekeeping procedures • General cleanliness *(Award 1 marks or zero*)	 1	
	Total Session 2	**30**	
REMARKS:			

NB: Photos and videos should be taken as the candidate performs items 6

WIRING DIAGRAM SESSION 2:



SESSION 3 (1 HOUR): ORAL ASSESSMENT (25 MARKS)

Assessor to award marks for each correct response by the candidate in the table below:

Q#	Question	Expected Response	Max Marks	Awarded
1.	Explain two factor to consider when selecting wiring system for bell and alarm system	Voltage and current rating of the system, Mechanical protection and safety of wiring, Environment of installation (indoor/outdoor), Aesthetics and neatness of wiring, Cost and availability of materials *(Award 2 mark for each correct answer)*	4	
2.	Mention two safety measures you would observe during bell and alarm system installation.	Switching off power, using insulated tools, PPE, following lockout/tagout procedures. *(Award 1 mark for each correct answer)*	2	
3.	Name two electrical tools used in installing a bell and alarm system.	Screwdriver, wire stripper, hammer drill. *(Award 1 mark for each correct answer)*	2	
4.	Name three protective devices for a bell and alarm system	MCBs, Fuses, RCD *(Award 1 mark for each correct answer)*	3	
5.	What is the purpose of performing a continuity test?	To check if there is an unbroken path for current flow. *(Award 1 mark or zero)*	1	

6.	Why is an insulation resistance test important?	Ensures no leakage current and that insulation is intact to prevent shock/fire. *(Award 1 mark or zero)*	1	
7.	What does a polarity test check in a bell and alarm system?	Confirms correct connection of live, neutral, and earth wires. *(Award 1 mark or zero)*	1	
8.	Why perform an earth resistance test?	Ensures effective grounding for safety in case of fault. *(Award 1 mark or zero)*	1	
9.	Explain two activities involved in maintaining a bell and alarm system.	Cleaning sensors, checking batteries, replacing damaged parts, testing functions. *(Award 2 marks for each correct answer)*	4	
10.	Name two materials used in maintenance of bells and alarm systems.	Cleaning cloth/brush, insulating tape *(Award 1 mark for each correct answer)*	2	
11.	Explain why it is important to keep maintenance records?	For tracking performance, future reference, and compliance with standards. *(Award 1 mark or zero)*	2	
12.	State two risks of incorrect polarity	Incorrect polarity can cause electric shock; equipment damage. (*Award 1 mark or zero for each*)	2	
	Total Oral		**25**	

SUMMARY OF ASSESSMENT

SECTION	**Total Marks**	**Marks Awarded**
Assessment 1	25	
Assessment 2	30	
TOTAL	**55**	
Percentage %		
ORAL ASSSESMENT		
Oral assessment	**25**	
Percentage %		

ASSESMENT OUTCOME

The candidate was found to be:

Competent ☐ Not yet Competent ☐

(Please tick as appropriate)

The candidate is competent if the candidate obtains at least 50%