

071306T4ELC

ELECTRONICS ENGINEERING LEVEL 6

ENG/OS/ET/CR/06/6/A

Maintain Automation and Radio Frequency Systems

March/April 2024



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

PRACT SMENT

INSTRUCTIONS TO ASSESSOR

1. Assess the candidate as the practical progresses observing the critical areas
2. You are required to mark the practical as the candidate perform the tasks
3. You are required to take video clips at critical points
4. Ensure the candidate has a name tag and registration code at the back and front
5. Introduce the following faults in the preinstalled circuit:
 - Reverse bias the LED
 - Create an open circuit at 741 Op Amp
 - Interchange R2 and R1
 - Connect pin 3 to pin 6 of the 741 Op Amp to create a short circuit

Candidate's Name & Registration No.			
Assessor's Name & Registration code			
Venue of Assessment			
Date of assessment			
Items to be evaluated: <i>Please award marks as appropriate. Give a brief comment on your observation.</i>	Marks allocated	Marks obtained	Comments
OBSERVATION CHECKLIST			
1. Wore Personal Protective Equipment			
i. Dustcoat/Overall (<i>Award 1 or 0</i>)	1		
ii. Safety boots (<i>Award 1 or 0</i>)	1		
2. Applied good housekeeping practice			
i. Ensured clean working area before beginning working. (<i>Award 2 or 0</i>)	2		
ii. Tidy working area arrangement			
• Before beginning (<i>Aw</i>	2		
• After work (<i>Award 2</i>	2		
iii. Proper Waste disposal (<i>Award 2</i>	2		
Sub total	10		
TASKS			
TASK 1- Inspection and Maintenance Checklist			
3. Inspected the circuit (<i>Award 3 or 0</i>)	3		
4. Prepared a maintenance checklist containing:			
i. Tasks to be performed (<i>Award 2 or 0</i>)	2		
ii. Key test points for the circuit (<i>Award 2 or 0</i>)	2		
iii. Specific components or area that requires maintenance. (<i>Award 2 or 0</i>)	2		
iv. List of tools and materials (<i>Award 2 or 0</i>)	2		
v. Procedure or steps to complete the maintenance task. (<i>Award 2 or 0</i>)	2		
vi. Safety precautions to be taken (<i>Award 2 or 0</i>)	2		

Sub-Total	15		
TASK 2 –Fault Diagnosis and Repair			
5. Performed fault diagnosis and repair			
i. Used appropriate testing equipment to identify faults. <i>(Award 1 marks x any 4)</i>	4		
ii. Identified faults <i>(Award 2 marks x 4)</i>	8		
iii. Repaired faulty circuit <i>(Award 5 or 0)</i>	5		
iv. Tested the repaired circuit <i>(Award 2 marks x 2)</i>	4		
Sub – total	21		
TASK 3 – Initial Testing and Verification			
6. Performed initial testing and verification			
i. Verified that amplifier gain was 5. <i>(Award 2 or 0)</i>	2		
ii. Confirmed that comparator in V. <i>(Award 2 or 0)</i>	2		
iii. Measured LM34 output volta <i>(Award 2 or 0) (value same a</i>	2		
iv. Monitored LED behavior under test conditions. <i>(Award 3 or 0)</i>	3		
Sub – Total	9		
TASK 4 – Circuit Transfer and Soldering			
7. Mounted and soldered the circuit on copper stripboard			
i. Transferred the circuit to the copper stripboard with accurate components layout <i>(Award 5 or 0)</i>	5		
ii. Soldered joints, shiny and smooth -Not lumpy <i>(Award 1mark x any 5)</i>			
iii. Trimmed excess leads <i>(Award 1mark x any 4)</i>	5		

iv. Neatness of circuit (<i>award 2 or 0</i>)	4		
	2		
Sub – Total	16		
TASK 5 – Final Testing and Verification			
8. Performed final testing and verification			
i. Verified that amplifier gain was 5. (<i>Award 2 or 0</i>)	2		
ii. Confirmed that comparator input voltage was 4 V. (<i>Award 2 or 0</i>)	2		
iii. Measured LM34 output voltage. (<i>Award 2 or 0</i>) (value same as 6.iii.)	2		
iv. Monitored LED behavior under test conditions. (<i>Award 3 or 0</i>)	3		
Sub – Total	9		
TASK 6 - Do d Reporting			
9. Compiled a comprehensive repor			
i. Documented faults. (<i>Award 1</i>	4		
ii. Documented repairs conducted. (<i>Award 1mark x 4</i>)	4		
iii. Documented test results. (<i>Award 1mark x 4</i>)			
iv. Documented final evaluation of circuit performance. (<i>Award 1mark x 4</i>)	4		
v. Documented discussion and conclusion. (<i>Award 1mark x 4</i>)	4		
	4		
	20		
GRAND TOTAL	100		
ASSESMENT OUTCOMES			
The candidate was found to be: (Please tick (√) as appropriate)			

Competent ☐	Not yet competent ☐
<i>(The candidate is competent if the candidate scores 50% and above)</i>	
Feedback from the Candidate:	
Feedback to the Candidate:	
Candidate Signature _____	Date: _____
Assessor's Signature _____	Date _____

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