

**061306T4CSC**

**COMPUTER SCIENCE LEVEL 6**

**ICT/OS/CS/CR/08/6/A**

**UNDERSTAND ALGORITHMS AND DATA STRUCTURES**

**NOV/DEC 2023**



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

**PRACTICAL ASSESSMENT**

**Time: 2 Hours**

**INSTRUCTIONS TO THE ASSESSOR**

1. You are required to mark the practical as the candidate performs the task.
2. You are required to take video clips at critical points.
3. Ensure that the candidate has a name tag and a registration code at the back and front.
4. Allocate **10** minutes for the candidate to identify and confirm the availability of the resources.
5. Candidate to perform the task as per the requirements.
6. Marks for each task are indicated.

## OBSERVATION CHECKLIST

<b>Candidate's name &amp; Registration No.</b>			
<b>Assessor's name &amp; Reg. code</b>			
<b>Unit(s) of Competency</b>			
<b>Venue of Assessment</b>			
<b>Date of assessment</b>			
<i>(Indicate the marks available and marks obtained respectively. Award marks appropriately as guided for in the items for evaluation indicated. Give a brief comment where necessary)</i>			
<b>Items to be evaluated:</b>	<b>Marks allocated</b>	<b>Marks obtained</b>	<b>Comments</b>
1. Launched C++ IDE successfully <i>(Award 2 marks or 0)</i>	2		
<b>a) Stack implementation using an array</b>			
2. Declared the array variables <i>(Award 3 marks or 0)</i>	3		
3. Correctly implemented of push operation <i>(Award 2 marks or 0)</i>	2		
4. Correctly implemented of pop operation <i>(Award 2 marks or 0)</i>	2		
5. Correctly implemented of peek operation <i>(Award 2 marks or zero)</i>	2		
6. Correctly implemented display operation <i>(Award 2 marks or zero)</i>	2		
7. Handled stack overflow and underflow conditions correctly <i>(Award 2 marks or zero)</i>	2		
<b>TOTAL</b>	<b>15</b>		
<b>b) Bubble sort implementation</b>			

8. Implemented bubble sort algorithm Initialization and Looping <i>(Award 2 Marks, or 0)</i> Element Comparison <i>(Award 1 Mark, or 0)</i> Element Swapping <i>(Award 1 Mark, or 0)</i> Loop Control and Sorting Completion <i>(Award 1 Mark, or 0)</i>	5		
9. Sorted the array in ascending order <i>(Award 2 Marks, or 0)</i>	2		
<b>Total</b>	<b>7</b>		

<b>c) Binary search implementation</b>			
10. Implemented the binary search algorithm Input Validation and initialization <i>(Award 2 Marks, or 0)</i> Binary Search Loop <i>(Award 2 Marks, or 0)</i> Search Completion and Element Found <i>(Award 2 Marks, or 0)</i>	6		
11. Returned the index of the target element <i>(Award 2 Marks, or 0)</i>	2		
<b>Total</b>	<b>8</b>		
<b>d) Linked list implementation</b>			
12. Correctly implemented the insertAtBeginning() operation <i>(Award 2 Marks, or 0)</i>	2		
13. Correctly implemented the insertAtEnd() operation	2		

14. Correctly implemented the insertAtPosition() operation (Award 2 Marks, or 0)	2		
15. Correctly implemented the deleteElement() operation (Award 2 Marks, or 0)	2		
16. Correctly implemented the search operation (Award 2 Marks, or 0)	2		
17. Correctly implemented the display operation (Award 2 Marks, or 0)	2		
<b>Total</b>	<b>12</b>		
18. Program executed without errors (Award 4 Marks, or 0)	4		
19. Commented code (Award 1 Mark for each comment used, maximum 4 Marks or 0)	4		
<b>Total</b>	<b>50</b>		

### ASSESSMENT OUTCOMES

The candidate was found to be:

Competent  Not yet competent

(Please tick as appropriate)

(The candidate is competent if s/he gets 50% or higher)

**Feedback from candidate:**

**Feedback to candidate:**

Candidate's signature:

Date:

Assessor's signature:

Date: