



TVET NATIONAL EXAMINATIONS, LEVEL 5, 2022-2023

INSTRUCTIONS TO CANDIDATES (ANSWER BOOKLET)

1. A candidate should fill in the actual names and the Index number on the cover of this questions and answer booklet on the provided place.
2. It is illegal for a candidate to write any of names, Index number or school name inside the answer booklet.
3. No candidate should remove or tear any pages or part of it in the answer booklet.
4. A candidate should answer in the language in which the examination is set.
5. A candidate should sign on the sitting plan when submitting the answer booklet. He/she has also to check if the answer booklet is well sealed.
6. No extra paper is allowed in the examinations room. If a candidate is caught with it his/her results will be nullified.
7. No candidate is allowed to write answers not related to the subject being sat for, otherwise it will be considered as a cheating case.
8. Write your answers on the 16 lined pages (From page 7 to page 22).
9. Use the last non-lined pages as draft.
10. Results for any candidate who is caught in examination malpractices are nullified. The cheating can be recognized during examinations administration, marking exercise or even thereafter.

- N.B:** 1) After results publication, there is no remarking and no candidate is given his/her answer booklet for review. This answer booklet is a property of NESAS.
- 2) Claims are only received online within 30 days after results publication. A link will be provided after results publication.

TVET NATIONAL EXAMINATIONS, LEVEL 5, 2022-2023

OPTION/TRADE: SOFTWARE DEVELOPMENT

SUBJECT/EXAM: ALGORITHM AND PROGRAMMING FUNDAMENTALS

DURATION: 3 HOURS

INSTRUCTIONS TO CANDIDATES (QUESTION PAPER)

This Exam paper is composed of Three Sections (A, B, and C). Follow the instructions given below, and answer the indicated questions for a total of 100 marks

Section **A**: Fourteen (**14**) questions, all **Compulsory** **55 marks**

Section **B**: Among the five (**5**) questions, attempt any three (3) **30 marks**

Section **C**: Among the two (**2**) questions, attempt any one (1) **15 marks**

Allowed materials:

- Blue or black pen
- Mathematical set

Note:

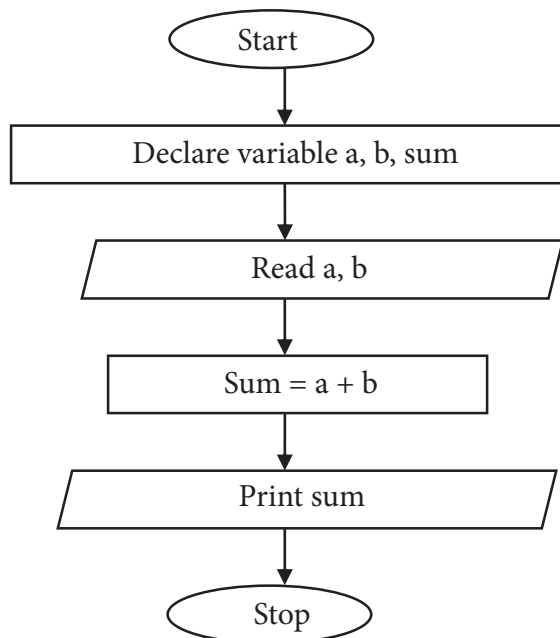
Every candidate is required to carefully comply with the provided assessment instructions.

T 168_ Algorithm and Programming Fundamentals

SECTION A: Attempt all questions

(55 marks)

01. What is python? (2marks)
02. Define the following terms applied in algorithm: (4marks)
- a) Debugging
 - b) Program linking
03. State any five (5) rules of naming a variable (5marks)
04. Define framework in python and give two (2) examples. (4marks)
05. List all steps followed to **push** and **pop** in stack. (5marks)
06. Find the output of the following program: (2marks)



If the value of $a=20$, $b=3$, what will be the value of the sum?

07. Explain IDE in python and give two (2) examples. (3marks)
08. Explain four (4) rules for switch statement in C language. (4marks)
09. Describe any two (2) main types of errors available in a programming language. (2marks)
10. Write an algorithm to read **n** number of values in an array and display them in reverse order. (4marks)

T 168_ Algorithm and Programming Fundamentals

- 11.** Write a C program that will display odd numbers from 50 to 10. **(5marks)**
- 12.** Develop a C program to display the days of the week by using switch case statement. **(5marks)**
- 13.** Use sum () function to develop a simple C program that will add two numbers. **(5marks)**
- 14.** Consider the following code snippet. **(5marks)**
- ```
int i = 10;
int n = i++%5;
```
- a)** What are the values of i and n after the code is executed?
- b)** What are the final values of i and n if instead of using the postfix increment operator (i++), you use the prefix version (++i)?

### **Section B: Attempt any three (3) questions**

**(30 marks)**

- 15.** Compare for loop with while loop. **(10marks)**
- 16.** Refer to table below and write an algorithm to print the grade obtained by a student. **(10marks)**

| <b>Marks</b> | <b>Grades</b> |
|--------------|---------------|
| Above 75     | O             |
| 60-75        | A             |
| 50-60        | B             |
| 40-50        | C             |
| Less than 40 | D             |

## **T 168\_ Algorithm and Programming Fundamentals**

- 17.** Analyze the expression provided in the first column and complete the second column of the table below. **(10marks)**

Assume that a=5, b=10, c=15 and d=0.

| <b>EXPRESSION</b>       | <b>TRUE OR FALSE</b> |
|-------------------------|----------------------|
| (a! = 7)                |                      |
| ((c>=15)    (d>a))      |                      |
| ((d/c < (a*b))          |                      |
| (! ((a+d) >= (c-b+1) )) |                      |
| ((c>b)&&(b<a))          |                      |

- 18. a)** Analyze the following program and provide its output. **(5marks)**

```
#include<stdio.h>
int main()
{
 int i;
 int arr[5] = {1,5,9};
 for (i = 0; i < 5; i++){
 printf("%d ", arr[i]);
 }
 return 0;
}
```

**(5marks)**

- b)** Explain realloc and give its syntax.

- 19.** With the help of examples, explain function overloading in C++. **(10marks)**

## ***T 168\_ Algorithm and Programming Fundamentals***

### **Section C: Attempt only one (1) question**

**(15 marks)**

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- 20.** Write a Pseudocode program of binary search algorithms. **(15marks)**
- 21. a)** Develop a JavaScript program that will calculate volume of **(10marks)**  
a box of length = 30, width = 50 and height=5  
**(Hint: volume = length \* width \* height)**
- b)** Create a JavaScript object that will store and output **(5marks)**  
product and price of a commodity.

**END OF ASSESSMENT**



























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