



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: DCT 1083
COURSE	: PROGRAMMING FUNDAMENTALS
SEMESTER/SESSION	: 1-2023/2024
DURATION	: 3 HOURS

Instructions:

1. This booklet contains 5 questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 4 PRINTED PAGES INCLUDING COVER PAGE

PROGRAMMING FUNDAMENTALS (DCT1083)

QUESTION 1

- a) Give **FIVE (5)** data type used in C++ variable declaration. (5 marks)
- b) Identify **FOUR (4)** rules in naming identifier. (4 marks)
- c) Answer the following questions related to the C++ `cin` statement. (1 mark)
 - (i) State which header files library it belongs to (3 marks)
 - (ii) Write a complete C++ statement for storing multiple variables in one line. Use example `mark1`, `mark2`, `mark3` as the variables.
- d) Explain the use of `setw` and `setprecision` with an example. (5 marks)
- e) Illustrate the flowchart shape for selection structure. (2 marks)

QUESTION 2

- a) Draw a flowchart for the following pseudocode. (12 marks)

1. Program starts.
2. User enter their born year.
3. Computer store the value of born year
4. Identify the status based on this criteria.
 If `born < 2000`, print "Gen Z"
 Else "Millennials kids"
5. Program ends.

- b) Write the syntax for a 'for' statement in C++. (4 marks)
- c) Convert the following 'while' loop into 'for' loop. (4 marks)

```
int i = 20;

while (i>0)
{
    cout<<i;
    i = i + 2;
}
```

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QUESTION 3

- a) Write a complete C++ program using 'for' loop based on the following pseudocode. (6 marks)

1. Program start.
2. Initialize int `i = 0`.
3. Condition must be less than 10 (`<10`)
4. Update statement; initialization + 2
5. Print `i`.
6. Program end.

- b) Write a function named 'add' which accept two numbers as argument. The function should return the sum of the two numbers. (7 marks)
- c) Write a main function that calls the 'add' function as in **b)** with two values 100 and 78 and then prints the returned value. (7 marks)

QUESTION 4

- a) List **TWO (2)** types of function. (4 marks)
- b) Define array. (2 marks)
- c) State the format of Array declaration. (4 marks)
- d) Write the C++ code following these requirements:
- (i) Declare `n`, and `i` as integer data type; set `i` to 0 and declare an array `arr` of any size. (2 marks)
 - (ii) Prompt user to enter the value of `n`. (3 marks)
 - (iii) Create a loop of `n` times and input a value `n` times into an array `arr`. (3 marks)
 - (iv) Display all the elements in `arr` using loop. (2 marks)

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QUESTION 5

- a) Explain how to access the value of an element in array. (2 marks)
- b) Define C++ pointers. (2 marks)
- c) Elaborate pointers declaration. (4 marks)
- d) Write a C++ for the following requirements.
 - (i) Declares an integer variable var and initializes it with the value 5. (2 marks)
 - (ii) Declares a pointer variable pointVar of type int*. (2 marks)
 - (iii) The addresses of var is assigned to pointVar using the address-of operator (&). (2 marks)
 - (iv) Print the value of var. (2 marks)
 - (v) Print the address of var using the address-of operator('&'). (2 marks)
 - (vi) Print the value stored in 'pointVar'. (2 marks)

-----End of Question-----