UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	:	DCT 1144
COURSE	:	PROGRAMMING FUNDAMENTAL
SEMESTER/SESSION	:	1-2024/2025
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 6 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) State the best **data types** to represent the following variables: (5 marks)

i) A number of students
ii) Book price
iii) Average of marks
iv) Student name
v) Car plate number

b) Write the correct **C++ declaration statements** for the following variables: (5 marks)

i) A number of students
ii) Book price
iii) Average of marks
iv) Student name
v) Car plate number

c) **Draw flowcharts** to represent the following short tasks: (10 marks)

i) To input two integers and find the sum
ii) To input two integers and find the largest

QUESTION 2

a) **Evaluate** the following expressions. State either the value is **TRUE** or **FALSE**: (5 marks)

i) 'A' > 'B'

ii) 'a' < 'h'

iii) (24 >= 35) || ('A > 'B')

iv) 6 != 6

v) (5 > 3) && (1 < 2)

b) **Write** the correct **C++ statement** for the following statement: (5 marks)

if (a + b) is not equal to 200 and b is greater than or equal to 300

c) The following C++ code use ***if* statement** for the selection process. **Change** the code to use ***switch* statement**. (10 marks)

```
if (code == 'S')
      cout<<"The item is space exploration grade";
else if (code == 'M')
      cout<<"The item is military grade";
else if (code == 'C')
      cout<<"The item is commercial grade";
else
      cout<<"An invalid code was entered";
```

QUESTION 3

a) **Identify ONE (1)** error in each C++ statement below and **write** the correct answer. (10 marks)

i)
```
int i = 0;
while (i < 10)
{
   cout<< i << endl;
   i = i - 1;
}
```

ii)
```
int i;
for (i=0; i++; i<10)
   cout<< i << endl;
```

iii)
```
int i;
do
{
   cout<< i << endl;
   i = i + 1;
}while (i < 10);
```

iv)
```
int k = 10;
do while (k > 0)
{
   total = total + k;
   k = k - 2;
}
```

v)
```
int i;
for (i=0; i<10; i++)
   for (j=0; j<3; j++)
      cout << "Hello";
```

b) Perform the task in each of the following statements: (8 marks)

i) **Write the function header** for function named *intFloat* that takes an integer number with no return value

ii) **Write the function header** for function named *smallest* that takes three characters with no return value

c) Given the following array declaration, (10 marks)

```
int x[3][5]={80,90,96,73,65,67,90,68,92,84,70,55,95};
```

state the value of:

i) `x[2][3]`
ii) `x[0][1]`
iii) `x[1][0]`
iv) `x[2][2]`
v) `x[1][4]`

QUESTION 4

a) Write a C++ program that **display** the following shape: (10 marks)

```
#####
$ $ $ $
* * *
&& !
```

(10 marks)

b) Write a C++ program to **display** number 1 to 10 using ***for* looping** statement.

QUESTION 5

Write a C++ program that includes a function named ***calculateAge***. This function should take two integer arguments: ***birth_year*** and **current_year**. The function will calculate the age by subtracting the birth year from the current year and print the age to the screen. (12 marks)

Example Input:

Birth year: 2000

Current year: 2024

Example Output:

Age: 24

----------**End of question**----------