UNIVERSITY COLLEGE TATI

## UNIVERSITY COLLEGE TATI (UC TATI)

| FINAL EXAMINATION QUESTION BOOKLET | |
|---|---|
| COURSE CODE | : BCT1113 |
| COURSE | : COMPUTER PROGRAMMING |
| SEMESTER/SESSION | : 2 - 2024/2025 |
| DURATION | : 3 HOURS |

Instructions:

1. This booklet contains **3** questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Students are allowed to refer to the lecturer's notes.
4. Students are allowed to use their own laptops.
5. For code writing questions, save the file in Notepad with the format ".cpp" for the source code file and ".exe" for the executable file.
6. 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**

**QUESTION 1**

(a) Answer following questions:

i. Differentiate between editor and compiler. (2 marks)

ii. Describe the purpose of Integrated Development Environment (IDE) (2 marks)

iii. Explain the purpose of comments in a program (2 marks)

(b) Write C++ statements for each of the following requirement.

i. User will be prompted to enter student number and it will be stored in variable `student_number`. (2 marks)

ii. Reading the value of width and length to be store in variable `width` and `length` upon promptly user. (2 marks)

(c) Write the output for each of the following statements (TRUE/FALSE/VALUE).

i. `cout << (5 == 7) II ((8-4) >=6));` (2 marks)

ii. `cout << (5 >= 5) && ((7 != 8) II ((9-3) == 6));` (2 marks)

iii. (3 marks)

```
int x = 9;
cout << x ++;
x +=3;
cout << ++x;
```

(d) Given integer variables **a=2, b=5, c=7** and floating-point variables **x = 10.0, y =10.5, z = 20.0,** write C++ statements (use set precision in two decimal places) to obtain accurate answer for each of the following expressions:

i. y + a – b (3 marks)

ii. a + b (z / a) (3 marks)

iii. x + (b / a) c (3 marks)

iv. z / a * y (3 marks)

v. (z + b) / b (3 marks)

**QUESTION 2**

(a) Answer following questions:

i. Explain difference between incremental and decremental loop? (2 marks)

ii. Explain how we can make the `for` loop more flexible as the `while` or `do...while` loop? (2 marks)

(b) Given the following data which were collected from 50 students. The data represent each student's height in centimeter.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 156 | 179 | 175 | 185 | 184 | 195 | 178 | 154 | 148 | 175 |
| 176 | 174 | 170 | 170 | 170 | 173 | 167 | 182 | 179 | 180 |
| 167 | 169 | 160 | 169 | 165 | 162 | 169 | 164 | 162 | 163 |
| 176 | 172 | 176 | 179 | 172 | 173 | 172 | 172 | 172 | 179 |
| 180 | 182 | 186 | 183 | 185 | 183 | 184 | 182 | 184 | 190 |

Apply C++ statement to determine the percentage of students whose their height exceeds 190 centimeters.

Coding requirements:

i. Proper use of data types and variable names (4 marks)

ii. Prompting the user to enter the data (4 marks)

iii. Process the data using counter (4 marks)

iv. Displaying the percentage of student (3 marks)

(c) Write a program to determine the year in which the current amount in your savings account will exceed 1000000 when the yearly dividend is 11.3%. Your program is required to enter the current amount in your saving account and the current year.

Coding requirements:

i. Proper use of data types and variable names (4 marks)

ii. Prompting the user to enter the data (4 marks)

iii. Process the data using counter (4 marks)

iv. Display the output (3 marks)

**QUESTION 3**

(a) i. Differentiates between enumeration and structure. (4 marks)

ii. What is the keyword used for enumeration and structure? (2 marks)

(b) Use C++ program to perform following:

i. Declare a new data type using enumeration called holiday which allows only the values Saturday and Sunday (3 marks)

ii. Declare a data type called colours which accept the values such as blue, red and green. (3 marks)

iii. Declare the study mode which only accepts the value such as fulltime or part-time only. (3 marks)

(c) Write a C++ program that calculates the price of a burger. Your program is required to enter the size of burger

Coding requirements:

i. Proper use of data types and variable names (4 marks)

ii. Prompting the user to enter the data (2 marks)

iii. Process the data (4 marks)

iv. Display the output (3 marks)

(d)

```
struct Date {
   int day, month, year;
};

struct computer {
   char serialNumber[15];
   char brand[20];
   char model[50];
   char countryMade[30];
   Date datePurchase;
};
```

Write separate expressions that can be used to access each of the following members:

i. Member serialNumber of computer. (2 marks)

ii. Member model of computer. (2 marks)

iii. Member datePurchase of computer. (2 marks)

---------- **End of questions**----------