FINAL
ALTERNATIVE ASSESSMENT

(COVER PAGE)

Session	:	**APRIL 2021**			
Programme	:	Diploma In Information Technology (DITN)			
Course	:	**ICT1103: STRUCTURED PROGRAMMING**			
Date of Examination	:	July 27, 2021 (Tuesday)			
Time	:	12.00pm – 2.30pm	Reading Time	:	Nil
Duration	:	2 Hours 30 Minutes			

Special Instructions :

This section consists of **FOUR (4)** questions. Answer **ALL** questions.

Note: 30 minutes is added into the duration of the examination to factor in any connectivity matters and for you to scan and upload your scripts.

IMPORTANT NOTE : THIS PAPER SHOULD NOT BE TAKEN OUT OF THE EXAMINATION HALL

Materials permitted :

Nil

Materials provided :

Nil

Examiner(s)	:	**Siti Hajar,** Lai Kim Min and NurSyarizan
Chief Moderator	:	Shee Fui Chie

*This paper consists of **6** printed pages, including the cover page*

DIPLOMA IN INFORMATION TECHNOLOGY PROGRAMME (DITN)
ICT1103: STRUCTURED PROGRAMMING
FINAL ALTERNATIVE ASSESSMENT: APRIL 2021 SESSION

SECTION A (60 marks)

Instruction: This section consists of **FOUR (4)** questions. Answer **ALL** questions.

Question 1

(a) Write a code fragment to prompt the user to enter item no and item name. Declare appropriate variables to hold the user inputs. The output is as follows:

```
Enter item no: 1111
Enter item name: Wireless Mouse X70
```

(7 marks)

(b) Write a C++ statement to accomplish each of the following tasks:

i) Update the value of a float variable `factor` by adding 1.5 to it.

ii) Declare a char variable called `type` and set the initial value as a null character.

iii) Cast the value 2.6 and store it into an integer variable called `number`.

iv) A `cout` statement to display the variable `cgpa` with 3 decimal places.

(8 marks)

(Total: 15 marks)

Question 2

(a) Write a code fragment with a **nested `for`** loop to produce the following output:

```
0
0 2
0 3 6
0 4 8 12
0 5 10 15 20
```

(7 marks)

(b) Based on the information given in the table below, use `if` statements to assign the correct movie ticket price to a variable called `ticketPrice`. Assume that the ticket code is stored into two distinct variables called `code1` (e.g. `'M'`) and `code2` (e.g. `'1'`) as `char` type. Prompt the user to enter the ticket code and display the ticket price to the user.

Ticket code	Ticket Price
M1	RM 25.00
M2	RM 20.00
M	RM 15.00
Other code	RM 10.00

(8 marks)

(Total: 15 marks)

Question 3

(a) Write the function prototype for the following scenarios:

i) A void function called `normalize` that accepts two `double` parameters.

ii) A void function called `report` that accepts three reference parameters as `int`, `double` and `string`.

(4 marks)

(b) Write a function called `range`. This function will accept two arguments of integer type. The following output show the execution of the function:

```
cout << range(1,5); // 1 2 3 4 5
cout << range(4,7); // 4 5 6 7
cout << range(6,1); // (no value printed)
```

The function will return a value as a `string` type. If the first argument value is smaller than the second argument value, an empty string will be returned.

(7 marks)

(c) Write a function called `evenNum` which uses the modulus (%) operator to determine whether an integer is even. The function should take an integer argument and return `true` if the integer is even and `false` otherwise.

(4 marks)

(Total: 15 marks)

Question 4

Write a C++ program to show the simple simulation of movement in a game. The program will generate a random number in the range 1 to 4. Display the output according to the generated random number. The program will be terminated after 10 consecutive movements.

Random Number	Output
1	Move Up
2	Move Right
3	Move Down
4	Move Left

(15 marks)

(Total: 15 marks)

SECTION B: 40 marks

Instruction: This section consists of **TWO (2)** questions. Answer **ALL** questions.

Question 1

You are required to write a program that will determine if a customer has exceeded the points limit on a membership account.

(a) The program should prompt user the following monthly information.

i. An integer account number
ii. Balance at the beginning of the month
iii. Total of all items charged
iv. Total of all points awarded
v. Allowed point limit

(9 marks)

(b) By using a `while` loop, the program should keep asking for the information in (a) until user keys in -1 for account number.

(2 marks)

(c) Calculate the new balance and determine if the new balance exceeds the customer's points limits. If the point limit exceeded, display back all the information, followed by "Points exceeded". Display all values in two decimal point format. Use the formula below:

New balance = beginning balance + charges – points

(9 marks)

(Total: 20 marks)

Question 2

You are about to create a simple 2D shooting game.

i) Create appropriate structures with the following information:

`Bullet`

- `isAvailable`: bool

`Gun`

- `type`: The gun type (e.g. Rifles or Pistol)
- `bulletSize`: Total bullets in the gun (e.g. 6 bullets in Pistol)
- `bullets`: An array of `Bullet` type. Maximum 100 bullets applied in the game.

(6 marks)

ii) Assume you have defined a variable called `myWeapon` as follows:

```
Gun myWeapon;
myWeapon.model = "Machine Gun";
myWeapon.size  = 80;
```

Write a code fragment to reload all the gun bullets status to `true`.

(4 marks)

iii) Create a function called `shot` that takes in a reference parameter as `Gun` type. The function displays the message "Reload" if the first bullet is empty. Otherwise, for every single bullet, it displays "Bang" and set the last bullet to false.

(10 marks)

(Total: 20 marks)

~THE END~