



PENINSULA
COLLEGE
GEORGETOWN DK266-03(P)

FINAL EXAMINATION

Semester		SEPTEMBER 2025 SEMESTER
Programme Name	:	DIPLOMA IN COMPUTER SCIENCE DIPLOMA IN E-BUSINESS TECHNOLOGY
Course Code & Name	:	DCS1143 DEB1343 FUNDAMENTALS OF PROGRAMMING
Duration	:	3 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY**.
2. The question paper consists of **FOUR (4)** questions.
3. Answer **ALL** questions in the question paper.
4. Answers to the questions are to be written into the examination booklet.
5. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

WARNING:

The Examination Board of Peninsula College Georgetown regards cheating as a very serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

(This booklet contains 4 printed pages including this page)

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

Answer **ALL** questions on the separate sheet provided.

[100 marks]

1. a) Explain the difference between interpreter and compiler. (4 marks)

- b) Explain the differences between machine language, assembly language, and high-level language. (6 marks)

- c) Define variable and constant, and give **TWO (2)** example for each. (6 marks)

- d) The following code in Figure 1 contains different types of errors. Identify and explain each type. (9 marks)

```
#include <ostream>
using namespace std;

int main()
{
    char a, b, sum;
    cout << "Enter two numbers: ";
    cin << a << b;

    sum = a - b;
    cout << "The sum is: " << sum << endl;
    return;
}
```

Figure 1

Total: [25 marks]

2. a) Based on the code in Figure 2, write the expected output displayed on the screen when the user enters the following electricity usage values :

```
int main()
{
    double units, bill;

    cout << "Enter electricity units used (in kWh) : ";
    cin >> units;

    if (units <= 100)
        bill = units * 0.50;
    else if (units <= 200)
        bill = 100 * 0.50 + (units - 100) * 0.75;
    else
        bill = 100*0.50 + 100*0.75 + (units - 200)*1.00;

    cout << "Total bill is: RM " << bill << endl;

    return 0;
}
```

Figure 2

- i. unit = 80 kWh (1 mark)
- ii. unit = 178 kWh (2 marks)
- iii. unit = 359 kWh (2 marks)

b) Write a C++ program that asks the user to enter their body temperature in Celsius and checks if they have a normal temperature (36°C to 37.5°C), fever (above 37.5°C), or hypothermia (below 36°C).
(Attention: Save your code in .pdf file name as Q2(b)_Index Number) (5 marks)

c) Write a C++ program that displays a simple Food Ordering Menu as shown in Figure 3 and allows the user to select multiple items. Each time the user selects an item, the program should add its price to the total. The menu should continue to display until the user chooses to exit (Option 5). Use a switch statement and a loop for repeating the menu.

```
===== FOOD MENU =====  
1. Burger      - RM 8.50  
2. Fried Rice  - RM 6.00  
3. Noodles     - RM 5.50  
4. Drink       - RM 2.00  
5. Exit  
=====
```

Figure 3

(Attention: Save your code in .pdf file name as Q2(c)_Index Number) (15 marks)
Total: [25 marks]

3. a) Write a C++ program that includes a function which takes the radius of a circle as a floating-point parameter and returns the calculated area and circumference using the formula below,

Area :

$$A = \pi \times r^2$$

Circumference :

$$C = 2 \times \pi \times r$$

Where, $\pi = 3.14159$. In the main function, prompt the user to enter the radius, call the function to obtain the area, and display the result on the screen.

(Attention: Save your code in .pdf file name as Q3(a)_Index Number) (12 marks)

- b) Write a C++ function that takes the original price of an item as a parameter and returns the final price after applying a discount based on Table 1, then call the function in the main program to display the discounted price.

Table 1 :

Price Range (RM)	Discount
300 and above	30% off
200 to 299	20% off
100 to 199	10% off
Below 100	5% off

(Attention: Save your code in .pdf file name as Q3(b)_Index Number) (13 marks)
Total: [25 marks]

4. a) Write a C++ program that defines a class named Book with private attributes: title, author, and price. Create setter and getter functions to store and display the book information. In the `main()` function, create an object of the class, use the setter functions to assign values, and then use the getter functions to display the details of the book.

(Attention: Save your code in .pdf file name as Q4(a)_Index Number) (15 marks)

- b) List the fundamental structural components of Object-Oriented Programming (OOP) in C++.

(5 marks)

- c) Describe how a class is represented in a UML Class Diagram and explain the purpose of each compartment.

(5 marks)

Total: [25 marks]

- END OF QUESTIONS -