Programming Exam 3 (補考)

Date/Time: [50 分鐘]

(程式檔命名學號_quiz3.py，上傳至 Moodle PE3 上傳區)

Problem: Temperature Converter

Create a temperature converter program in Python that converts temperatures between Celsius, Fahrenheit, and Kelvin. The program should follow these rules and features:

(1) Print a welcome message to the user when the program starts.

(2) Allow the user to select a temperature scale to convert from and to (Celsius, Fahrenheit, or Kelvin).

(3) Ensure the 'to' scale is different from the 'from' scale.

(4) Prompt the user to enter a temperature value.

(5) Convert the temperature value from the 'from' scale to the 'to' scale and display the result.

- Celsius to Fahrenheit: **(C * 9/5) + 32**, Celsius to Kelvin: **C + 273.15**
- Fahrenheit to Celsius: **(F - 32) * 5/9**, Fahrenheit to Kelvin: **((F - 32) * 5/9) + 273.15**
- Kelvin to Celsius: **K - 273.15**, Kelvin to Fahrenheit: **(K - 273.15) * 9/5 + 32**

(6) Ask the user if they want to perform another conversion.

(7) If the user chooses to perform another conversion, repeat steps 2-6.

(8) If the user chooses to exit the program, display a goodbye message and exit.

Sample Input/Output   (以下是你程式執行後須印出的結果)

```
c:\workspace>python pe3_extra2.py
Welcome to the Temperature Converter

Please choose a temperature scale to convert from:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: C
Please choose a temperature scale to convert to:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: F
Please enter the temperature value: 10
The converted temperature is 50.00 F
Do you want to perform another conversion? (y/n): y

Please choose a temperature scale to convert from:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: K
Please choose a temperature scale to convert to:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: K
The 'from' and 'to' scales should be different.

Please choose a temperature scale to convert from:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: K
Please choose a temperature scale to convert to:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: C
Please enter the temperature value: -10
The converted temperature is -283.15 C
Do you want to perform another conversion? (y/n): n
Goodbye!

c:\workspace>
```

```
c:\workspace>python pe3_extra2.py
Welcome to the Temperature Converter

Please choose a temperature scale to convert from:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: F
Please choose a temperature scale to convert to:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: K
Please enter the temperature value: 50
The converted temperature is 283.15 K
Do you want to perform another conversion? (y/n): y

Please choose a temperature scale to convert from:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: C
Please choose a temperature scale to convert to:
Enter C for Celsius, F for Fahrenheit, or K for Kelvin: F
Please enter the temperature value: -100
The converted temperature is -148.00 F
Do you want to perform another conversion? (y/n): n
Goodbye!

c:\workspace>
```

(繳交是交 pe3.py 檔，不是交截圖)

Note: You need to write comments (註解) for each part in your code.