Name: _____ **ID:** _____

Due: today or in a lab session next week

Instructions:

- Marking lab assignments will be done in the lab
- **Compile** and **Run** your program
- **Show** and **Explain** the output and your code to the lecturer or the lab assistance.

------------------------------------- **Lab Assignments** -----------------------------------

Lab 1: Write a complete C program to produce the data "exactly" as shown below:

Expected output:

```
Part No.      Price
T1267        $6.34
T1300        $8.92
T2401       $65.40
T4482       $36.99
```

Lab 2: Write a program to determine and display a student's letter grade based on their numerical grade. The program has to accept three number separated by spaces as a **quiz score** (30), a **mid-term score** (35), and a **final score** (35) respectively. These scores are used to sum up for calculating the numerical grade. The letter grade is converted according to the following rules:

Numerical Grade	Letter Grade
Numerical grade >=90	A
Numerical grade >= 80 and <90	B
Numerical grade >= 70 and <80	C
Numerical grade >= 60 and <70	D
Numerical grade <60	F

- If the value of input scores is negative, the program should display a message indicating that the score is invalid.

- If the value of input scores is exceeded the maximum limit, the program should display a message indicating that the score is invalid. For example, the quiz score should less than or equal to 30.

Example output:

20	-1
25	20
30	20
You have got: C	The score is invalid.

Lab 3: Write a program to convert between Inches (inch) and Centimeter (cm). The program has to accept two parameters, one is a number and another one is a letter. If the letter is 'c', the number entered earlier will be treated as a unit of Centimeter(cm) which the program has to convert it to the equivalent unit of Inches (inch). If the letter is 'i', the program has to convert the number to the equivalent unit of Centimeter(cm). After conversion, print a suitable message showing the results. The conversion formulas are given below.

$$Centimeter\ (cm) = Inches\ (inch) \times 2.54$$

Example output:

11	19.45
i	c
11.00 inch = 27.94 cm	19.45 cm = 7.66 inch

Lab 4: Write a program to simulate a process of cash withdrawal from ATM and provide outputs as appropriate. The program requires user to input the amount to withdraw. However, the ATM contains only of 100, 500, and 1000 baht banknotes. Thus, some amounts of money are not possible to be withdrawn. The program needs to validate the amount entered by the user whether the ATM can be given out the combination of such banknotes or not. Then show output as example output as below:

Example output:

2800	2561
Summary of banknotes:	Sorry.. the amounts you
2 notes of 1000 bath	insert are not possible to
1 notes of 500 bath	withdrawn.
3 notes of 100 bath	

Bonus Lab 1: Write a program in C to calculate and print the *telephone bill* of a given customer. The customer id., name and unit consumed (mins) by the user should be taken from the keyboard and display the total amount to pay to the customer. The bills are calculated based on the following rule:

Unit (mins)	Charge/Unit
up to 100	@1.00
For next 100 and above but less than 300	@0.75
For next 300 and above but less than 600	@0.50
For next 600 and above	@0.25

**If bill exceeds 300 bath then a surcharge of 15% will be charged.

Example output:

```
Input Customer ID :4688322
Input the name of the customer :Peter
Input the unit(mins) consumed by the customer : 350

Telephone Bill
Customer ID NO              : 4688322
Customer Name               : Peter
Unit Consumed (Mins)        : 350
Surchage Amount (15)        : 0.00
Net Amount Paid             : 275.00
```

```
Input Customer ID :12141386
Input the name of the customer :Sarah
Input the unit(mins) consumed by the customer : 487

Telephone Bill
Customer ID NO              : 12141386
Customer Name               : Sarah
Unit Consumed (Mins)        : 487
Surchage Amount             : 51.53
Net Amount Paid             : 395.02
```