

Paper A

National University of Computer & Emerging Sciences, Karachi
MID - Programming Fundamentals (Lab) CS-Department

NUST

Course Code:	Course Name: CS-101
Instructor Name: Aqsa Zahid	
Student Roll No: 21 K-3-53	Section No: 2

Instructions:

- Return the question paper.
- Read each question completely before answering it. In case of any ambiguity, you may make assumption. But your assumption should not contradict any statement in the question paper.
- All the answers must be solved according to the sequence given in the question paper.

Time: 40 minutes.

EACH QUESTION CARRY 10 POINTS

Max Marks 30 points

Question 01:

An online retailer sells five different products whose retail prices are shown in the following table

Product code	Product price
1	2000
2	500
3	200
4	3400

Write a program that reads a series of pairs of numbers till user wants to calculate as follows:

- Product number
- Quantity sold for one day

Your program should use a switch statement to help determine the retail price for each product. Your program should calculate and display the total retail value of all products sold last week.

Question 02:

Write a C program in which take an integer number as input your work is to determine if the number is XNumber. XNumber is number if sum of the squares of digits of number till it takes less than 10 iteration

Eg 23: is xNumber because $2^2+3^2 = 13$, $1^2+3^2=10$, $1^2+0^2 = 1$ (3 steps)

Question 03:

Write a program that calculates and prints the bill for internet charges. Package includes two types of service: regular and premium. Its rates vary, depending on the type of service. The rates are computed as follows:

- Regular service: \$10.00 plus first 55 minutes of internet use are free. Charges for over 50 minutes are \$0.20 per minute.
- Premium service: \$25.00 plus:

- a. For internet used from 6:00 a.m. to 6:00 p.m., the first 75 minutes are free; charges for more than 75 minutes are \$0.10 per minute.
- b. For internet used from 6:00 p.m. to 6:00 a.m., the first 100 minutes are free; charges for more than 100 minutes are \$0.05 per minute.

Your program should prompt the user to enter an account number, a service code (type char), and the number of minutes the service was used.

A service code of **r** or **R** means regular service; a service code of **p** or **P** means premium service. Treat any other character as an error. Your program should output the account number, type of service, number of minutes the internet service was used, and the amount due from the user. For the premium service, the customer may be using the service during the day and the night. Therefore, to calculate the bill, you must ask the user to input the number of minutes the service was used during the day and the number of minutes the service was used during the night.