FINAL LAB TEST

COURSE CODE AND TITLE: **ISYS3414 PRACTICAL DATABASE CONCEPTS**

DATE: 27TH MAY 2022

DURATION OF EXAMINATION: **90 minutes**

EXAMINATION PAPER DETAILS:

Number of questions:	**2**
Total marks available:	**30 marks**

INSTRUCTION TO CANDIDATES:

- This final lab test contributes 30% to the overall subject assessment.
- Only lecture slides and material on Canvas are allowed.
- Mobile phones are not allowed in the exam room. Calculators and other electronic devices are not allowed.
- Answer all questions. Plan your time accordingly.
- SQL answers have to be written in a file that you will submit on Canvas.
- When writing code (SQL), observe the usual style guidelines for meaningful names and layout.
- All working must be done on this exam paper (answer at the space provided below each question or section)
- Before submitting this paper, please complete the following box:

Candidate's Family Name:	Candidate's Given Name:
Candidate's Student No.:	

Examiners use only

Question (Maximum marks)	**1 (24)**	**2 (6)**	**Total (30)**
Marks			

Question 1 – SQL queries **(Total: 24 marks)**

Given the relational schema below, answer the following SQL questions with result screenshot. These tables are part of an online jewellery store database containing data about customers, products, purchases, and purchase details. The purchase table include the total amount and the purchase detail table include the quantity of products. Each query is worth 3 marks.

Customer (cID, name, phone)

Product (pID, name, price, type)

Purchase (purchaseID, Customer.cID customer, date, total_amount)

Purchase_Detail (Purchase.purchaseID purchase, Product.pID product, quantity)

Data of these tables is given in the database provided.

a) Find the customers that haven't make any purchase. Show the customer ID and name.

b) Which product is most expensive? Show product ID, name and price.

c) Which products have the highest total quantity purchased? Show the product name and the number purchased.

d) Calculate the total amount of each purchase (the total amount column currently has no value). Show purchase ID and total amount.

e) Find the products that haven't been purchased since 2020-11-15. Show the product ID and name.

f) Find the total sale of November 2020.

g) Find the average price of each product type. Show product type and average price

h) Show the product type that has average price less than average price of all product

Question 2 – Normalization **(Total: 6 marks)**

Optimize the following database using normalization. Showing the steps from un-normalized form to 3NF.

Project ID	Project Name	Employee ID	Employee Name	Position	Hour salary	Hours
11	High Sierra	1001	John Smith	Web Developer	100	40
		1002	Anthony Jackson	Business Analyst	80	20
		1003	Harris Morrison	Database Developer	120	35
12	Montgomery	1005	John Bell	Database Developer	120	55
		1006	Adam Max	Web Developer	100	90
13	Big Sur	1001	John Smith	Web Developer	100	60
		1003	Harris Morrison	Database Developer	120	70
		1004	Albert Greene	Business Analyst	80	25