MODULE NAME:	MODULE CODE:
ADVANCED DATABASES	ADDB7311

ASSESSMENT TYPE:	**TEST (PAPER ONLY)**
TOTAL MARK ALLOCATION:	**60 MARKS**
TOTAL HOURS:	**1.5 HOURS (+10 minutes reading time)**

INSTRUCTIONS:

1. *Please adhere to all instructions in the assessment booklet.*
2. *Independent work is required.*
3. *Five minutes per hour of the assessment to a maximum of 15 minutes is dedicated to reading time before the start of the assessment. You may make notes on your question paper, but not in your answer sheet. Calculators may not be used during reading time.*
4. *You may not leave the assessment venue during reading time, or during the first hour or during the last 15 minutes of the assessment.*
5. *Ensure that your name is on all pieces of paper or books that you will be submitting. Submit all the pages of this assessment's question paper as well as your answer script.*
6. *Answer all the questions on the answer sheets or in answer booklets provided. The phrase 'END OF PAPER' will appear after the final set question of this assessment.*
7. *Remember to work at a steady pace so that you are able to complete the assessment within the allocated time. Use the mark allocation as a guideline as to how much time to spend on each section.*

Additional instructions:

1. *This is an OPEN BOOK assessment.*
2. *Calculators are not allowed.*
3. *Answer All Questions.*
4. *Instructions for assessments including practical computer work:*
   - *This is an open book assessment – You may use your prescribed textbooks and help files that are present on the computer.*
   - *Use of good programming practice and comments in code is compulsory.*
   - *Save your application in the location indicated by the administrator (e.g. the Z:\ drive or your local drive).*
   - *Create a folder as follows: use the module code and your own student number and create a folder with a folder name as per the format shown here:*
   - ***StudentNumber_ModuleCode_Exam**. Save all files (including any source code files, template files, design files, image files, text files, database files, etc.) within this folder.*
   - *E.g. if your student number is 12345, and you are writing an examination for the module PROG121, create a folder named **12345_Prog121_Exam** and use this throughout the session to save all of your files.*

- ***Important:*** *Upon completion of your assessment, you must save and close all your open files and double click the ExamLog application on your desktop. You must follow the instructions carefully to ensure that the information about the files that you have submitted for this assessment has been logged on the network. Specify the location of your source code on your question paper.*

5. *Save your work every five minutes.*
6. *Use Oracle 11g™ to complete the questions.*
7. *Copy your answers (SQL and results) to a Microsoft Word™ document, saved as AdvancedDatabases_YourNameSurname_StudentNumber in your local folder.*
8. *All **code** and **output** (captured using the Snipping Tool™) needs to be copied to an MS-Word™ document.*
   - *An **SQL query** is meant to represent a standard syntax SQL query.*
   - *A **PL/SQL query** requires at least an anonymous code block that could contain variables, cursors, conditionals and loop structures.*

Question 1 (Marks: 60)

The following set of relations has been set up for a new information technology company that specialises in the production of Android devices. At present the database is small and only includes information about products, customers and sales. The relationships between the tables must be derived from the data in each of the tables.

The tables and the information we require are as follows:

- PRODUCT(ProductID, Product, Price, StockLevel);
- CUSTOMER(CustomerID, CompanyName, Address, Email);
- SALES(SaleID, ProductID, CustomerID, SaleDate, Quantity).

Sample data is shown below:

PRODUCT

PRODUCTID	PRODUCT	PRICE	STOCKLEVEL
X500	Android 8 inch 3g WiFi	R1 999.00	10
X501	Android 10 inch 3g	R2 499.00	5
X502	Android 7 inch Tab	R2 799.00	8
X503	Android 10 inch Tab	R1 599.00	3

CUSTOMER

CUSTOMERID	COMPANYNAME	ADDRESS	EMAIL
10010	Wireless Devices	10 Main Rd	wdev@gmail.com
10011	Mobile Extreme	12 Water Way	moex@gmail.com
10012	Android Haven	18 Main Rd	ahaven@gmail.com

SALES

SALEID	PRODUCTID	CUSTOMERID	SALEDATE	QUANTITY
555	X500	10010	15 May 2016	5
556	X503	10010	17 May 2016	3
557	X500	10012	17 May 2016	1
558	X501	10012	18 May 2016	1
559	X501	10010	20 May 206	1

Q.1.1	You need to create the tables given above to complete the test. Create the tables and populate them using SQL Developer or SQL*Plus.	(10)
Q.1.2	Write an SQL query that will display the company name, product and quantity purchased. Sample Results:	(5)

COMPANYNAME	**PRODUCT**	**QUANTITY**
Android Haven	Android 8 inch 3g WiFi	1
Wireless Devices	Android 8 inch 3g WiFi	5
Wireless Devices	Android 10 inch 3g	1
Android Haven	Android 10 inch 3g	1
Wireless Devices	Android 10 inch Tab	3

Requirement	Mark Allocation	Examiner
Correct select statement used.	(2)	
Correct tables used.	(2)	
Correct output.	(1)	
Question 1 TOTAL	**(5)**	

Q.1.3 Write an SQL query that will display the company name, product purchased and the total bill to be paid by the company. In your query, also display a 10% discount and the discounted total. (6)

Sample Results:

COMPANYNAME	PRODUCT	TOTAL	DISCOUNT	DISCOUNTED_TOTAL
Android Haven	Android 8 inch 3G WiFi	R1 999	R199.9	R1 799.1
Wireless Devices	Android 8 inch 3G WiFi	R9 995	R999.5	R8 995.5
Wireless Devices	Android 10 inch 3G	R2 499	R249.9	R2 249.1
Android Haven	Android 10 inch 3G	R2 499	R249.9	R2 249.1
Wireless Devices	Android 10 inch Tab	R4 797	R479.7	R4 317.3

Requirement	Mark Allocation	Examiner
Correct select statement used.	(3)	
Correct tables used.	(2)	
Correct output.	(1)	
Question 2 TOTAL	**(6)**	

Q.1.4 Create a PL/ SQL query that will display the product name and the total amount of revenue generated from the sales of the product. In your query, display the total sales amount for product id "X500". (10)

Sample Results:

Anonymous block completed

The total sales amount for product Android 8 inch 3G wifi is: R1 1994

Requirement	Mark Allocation	Examiner
Variables declared correctly.	(2)	
Correct select statement used.	(2)	
Correct use of cursor.	(2)	
Correct method to display output.	(2)	
Correct use of loop.	(2)	
TOTAL	**(10)**	

Q.1.5 Create a PL/ SQL query that will display the company name and how many purchases have been made. In your query make use of variables and a cursor. (10)

Sample Results:

Anonymous block completed

Purchases made by Wireless Devices: 3

Purchases made by Android Haven: 2

Requirement	Mark Allocation	Examiner
Variables declared correctly.	(2)	
Correct select statement used.	(2)	
Correct use of cursor.	(2)	
Correct method to display output.	(2)	
Correct use of loop.	(2)	
TOTAL	**(10)**	

Q.1.6 Create a view called No_Purchases that will display the company name that has not made any device purchases. (6)

Sample Results:

COMPANYNAME

Mobile Extreme

Requirement	Mark Allocation	Examiner
View created correctly.	(2)	
Correct select statement used.	(2)	
Correct method to display output.	(2)	
Question 3 TOTAL	**(6)**	

Q.1.7 Create a PL/ SQL query that will display whether a product stock level needs to be increased. If the stock level is greater than or equal to 10 display: *"stock levels are stable".* If the stock level is less than 10 display: *"Stock levels are not stable. Stock levels need to be increased*". In your query make use of product id X503. (8)

Sample Results:

Anonymous block completed

X503 stock levels are not stable. Stock levels need to be increased.

Requirement	Mark Allocation	Examiner
Variables declared correctly.	(2)	
Correct select statement used.	(2)	
Correct use of selection structures.	(2)	
Correct method to display output.	(2)	
Question 4 TOTAL	**(8)**	

Q.1.8 Create a user called sam_smith with the password *smith12345*. Assign select privileges to sam_smith for the Products table. (2)

Requirement	Mark Allocation	Examiner
User created correctly.	(1)	
Privileges assigned correctly.	(1)	
Question 5 TOTAL	**(2)**	

Q.1.9 Create a sequence called sales_id that will start at id 560 and increment by one (1). (3)

Requirement	Mark Allocation	Examiner
Sequence created correctly.	(2)	
Sequence starts at 560 and increments by one (1).	(1)	
TOTAL	**(3)**	

END OF PAPER