



<b>MODULE NAME:</b>	<b>MODULE CODE:</b>
<b>ADVANCED DATABASE</b>	<b>ADDB7311</b>

<b>ASSESSMENT TYPE:</b>	<b>EXAMINATION (PAPER ONLY)</b>
<b>TOTAL MARK ALLOCATION:</b>	<b>120 MARKS</b>
<b>TOTAL HOURS:</b>	<b>2 HOURS (+10 minutes reading time)</b>

**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 allowed.
3. For open book assessments the students may have open access to all resources inclusive of notes, books (hardcopy and e-books) and the internet. These resources may be accessed as hard copies or as electronic files on electronic devices. All electronic devices batteries must be fully charged before the assessment as no charging of devices will be permitted during the sitting of the assessment. The IIE and associated brands accept no liability for the loss or damage incurred to electronic devices used during open book assessments.
4. Instructions for assessments including practical computer work:
  - 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 ADDB7311, create a folder named **12345\_ADDB7311\_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.

### Instructions

Create a database in Oracle named ADDB7311Exam\_StudentNumber and execute the preloaded SQL code using either SQL Developer™ or SQL\*Plus™ to create the database schema.

Copy and paste your queries into a MS Word™ document. Save this file as “Advanced\_Databases\_Exam\_Student\_Number”. Write the path and filename of this document on your exam paper.

**PRELOADS:** ADDB7311Ea\_Preload.sql

The following set of relations has been set up for a local golf club repair store specialising in the repairing of all types of golf clubs. At present, the database is small and only includes information about clubs, customers, repairs and club repairs. The relationships between the tables must be derived from the data in each of the tables. The tables and the information required are as follows:

CLUBS(club\_id, club\_type, club\_model, manufacturer)

CUSTOMER(cust\_id, cust\_fname, cust\_sname, cust\_address, cust\_contact)

REPAIRS(repair\_id, repair\_work, repair\_date, repair\_hrs)

CLUB\_REPAIRS(club\_repair\_num, club\_repair\_date, club\_repair\_amt, club\_id, cust\_id, repair\_id )

Sample Data is shown below:

#### CLUBS

CLUB_ID	CLUB_TYPE	CLUB_MODEL	MANUFACTURER
12345	Putter	K100	Taylor Made
54321	Driver	J55	Ping
78945	Iron	H9000	King Kobra
98754	Wedge	A450	Nike
55311	Recovery	L920	Callaway

## CUSTOMER

CUST_ID	CUST_FNAME	CUST_SNAME	CUST_ADDRESS	CUST_CONTACT
C115	Jeff	Willis	3 Main Road	0821253659
C116	Andre	Watson	13 Cape Road	0769658547
C117	Wallis	Smith	3 Mountain Road	0863256574
C118	Alex	Hanson	8 Circle Road	0762356587
C119	Bob	Bitterhout	15 Main Road	0821235258
C120	Thando	Zolani	88 Summer Road	0847541254
C121	Philip	Jackson	3 Long Road	0745556658
C122	Sarah	Jones	7 Sea Road	0814745745

## REPAIRS

REPAIR_ID	REPAIR_WORK	REPAIR_DATE	REPAIR_HRS
1	Shaft Replacing	15-JUL-22	2
2	Grip Replacing	18-JUL-22	1
3	Club Head Repair	19-JUL-22	3

## CLUB\_REPAIRS

CLUB_REPAIR_NUM	CLUB_REPAIR_DATE	CLUB_REPAIR_AMT	CLUB_ID	CUST_ID	REPAIR_ID
101	27-JUL-19	R 75	98754	C121	3
102	20-JUL-19	R 30	12345	C120	2
103	23-JUL-19	R 75	55311	C119	1
104	17-JUL-19	R 50	54321	C117	1
105	19-JUL-19	R 30	12345	C122	2

**Question 1****(Marks: 10)**

Create a SQL query to display the golf club id, customer id, repair hours and the cost amount to repair the club. In your query, include the total repair amount by multiplying the repair hours by the club repair amount.

**Sample Results**

CLUB_ID	CUST_ID	REPAIR_HRS	CLUB_REPAIR_AMT	TOTAL
98754	C121	3	R 75	R 225
12345	C120	1	R 30	R 30
55311	C119	2	R 75	R 150
54321	C117	2	R 50	R 100
12345	C122	1	R 30	R 30

Question 1 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
SELECT Statement	3 - 4	2	1	0	
	Correct SELECT statement; Correct columns selected.	Correct SELECT statement used; At least one column not selected.	SELECT statement used; Most columns not selected.	Not provided.	
Tables	3 - 4	2	1	0	
	Correct Tables used; Linked correctly.	Correct Tables used; Links inadequate; Minor corrections required.	Most Tables not provided; Links incorrect; Major corrections required.	Not provided.	
Query Output	2	1	½	0	
	Correct output achieved; Output Screenshot provided.	Correct output achieved OR Output Screenshot provided.	Correct output not achieved and/or Output Screenshot provided.	Not provided.	

**Question 2****(Marks: 20)**

Complete the following:

1. Create a PL/SQL query that will display the customer id, repair work done and the repair amount. In your query, only display the results where the repair amount is greater than R50.
2. Identify the type of cursor used and provide two reasons for its suitability in this query. Provide this information as a comment at the end of your code.
3. Provide screenshot of query output.

***Sample Results***

-----  
CUSTOMER ID: C119,  
REPAIR WORK: Shaft Replacing  
REPAIR AMOUNT: R75  
-----

CUSTOMER ID: C121,  
REPAIR WORK: Club Head Repair  
REPAIR AMOUNT: R75  
-----

Question 2 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
Declarations and Variables	3	2	1	0	
	Correct variables declared.	All variables declared; One variable is inadequate/not declared correctly.	At least one variable declared correctly.	Not provided.	
Cursor and SELECT Statement	8 - 10	5 - 7	1 -4	0	
	Correct type of cursor used; Cursor correctly implemented; SELECT statement correctly used; Correct Columns used; Correct tables used and	At least one of the following is inadequate/not implemented:  Correct type of cursor used; Cursor correctly implemented; Select statement incorrectly used. Correct Columns used;	At least two of the following are inadequate/not implemented:  Correct type of cursor used; AND the following is inadequate/not implemented Cursor implementation;	Not provided.	



	linked correctly.	Correct tables used, Tables linked correctly.	Use of Select statement.		
Output	<b>2</b>	<b>1</b>	$\frac{1}{2}$	<b>0</b>	
	Correct output achieved; Output Screenshot provided.	Correct output achieved; Output Screenshot not provided.	Correct output is not achieved; Output Screenshot provided.	Not provided.	
Comments	<b>4 - 5</b>	<b>3</b>	<b>1 - 2</b>	<b>0</b>	
	Information provided as a comment; Cursor identified; And two adequate reasons adequately provided.	Information provided as a comment; Cursor identified; and at least one reason provided.	Information provided as a comment; Cursor identified; Or At least one reason provided.	No comment provided.	

**Question 3****(Marks: 15)**

Complete the following:

1. Create a PL/SQL query that will display the customer name, type of club, repair work and the repair date. In your query, display the repair amount and the total amount for customer 'C121' only.
2. Provide screenshot of query output.

**Sample Output**

CUSTOMER: Philip Jackson

CLUB TYPE: Wedge

REPAIR WORK: Club Head Repair

REPAIR DATE: 27-JUL-19

REPAIR AMT: R 75

TOTAL DUE: R 225

-----

Question 3 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
Declarations and Variables	3	2	1	0	
	Correct variables declared.	All variables declared; One variable is inadequate/not declared correctly.	At least one variable declared correctly.	Not provided.	
Cursor and SELECT Statement	8 - 10	5 - 7	1 -4	0	
	Correct type of cursor used; Cursor correctly implemented; SELECT statement correctly used; Correct Columns used; Correct tables used; Tables linked correctly.	At least one of the following are inadequate/not implemented:  Correct type of cursor used; Cursor correctly implemented; Select statement incorrectly used; Correct Columns used;	At least two of the following are inadequate/not implemented:  Correct type of cursor used; AND the following is inadequate/not implemented. Cursor implementation; Use of Select statement.	Not provided	

		Correct tables used; Tables linked correctly.			
Output	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct output achieved, Output Screenshot provided.	Correct output achieved; Output Screenshot not provided.	Correct output is not achieved , Output Screenshot provided.	Not provided.	

**Question 4****(Marks: 15)**

Complete the following:

1. Create a view called **vwCustomerRepairs** that will display the combined customer name, golf club type, repair work and the customer contact number. In your query, only display the customers whose address contains 'Mountain'.
2. Briefly explain two advantages of views in this scenario. Provide this information as a comment at the end of your code.
3. Provide screenshot of query output.

**Sample Output**

CUSTOMER	CLUB_TYPE	REPAIR_WORK	CONTACT
Wallis, Smith	Driver	Shaft Replacing	0863256574

Question 4 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
VIEW Statement	3	2	1	0	
	Correct VIEW statement used and correctly implemented.	VIEW statement used; Minor implementation errors.	VIEW statement used; Major implementation errors.	Not provided.	
SELECT statements	4 - 5	3	1 - 2	0	
	Correct SELECT statement used.	Correct SELECT statement used.	SELECT statement used;	Not Provided.	

	Correct columns selected; tables correct.	At least one required column not selected; correct tables mostly used and linked correctly; Minor changes required.	Most required columns not selected. Required tables mostly used, links mostly correct; Major changes required.		
CODE to view output	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct Code to view output is provided.	Code to view output is provided; Minor errors in code.	Code to view output is provided; Major errors in code.	No code provided.	
OUTPUT	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct output achieved; Output Screenshot provided.	Correct output achieved; Output Screenshot not provided.	Correct output is not achieved, Output Screenshot provided.	Not provided.	
COMMENTS	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	
	Information provided as a comment; And two advantages adequately provided.	Information provided as a comment; At least one advantage adequately provided.	Information provided as a comment; Advantages inadequately explained.	No comment provided.	

**Question 5****(Marks: 20)**

Complete the following:

1. Create a procedure called **spClubDetails** that will display the golf club details for the manufacturer 'Callaway'.
2. In your solution, provide the code to execute the procedure with exception handling if no data is found.
3. Provide comments highlighting the different sections of the procedure and why they are needed.
4. Provide screenshot of query output.

**Sample Output****CLUB DETAILS >> ID: 55311, TYPE: Recovery, MODEL: L920, MANUFACTURER: Callaway**

Question 5 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
PROCEDURE Statement	3	2	1	0	
	Correct create procedure statement used.	Create Procedure statement used; Minor changes required.	Create Procedure statement used; Major changes required.	Not provided.	
Variables & SELECT statement	5 - 6	3 - 4	1-2	0	

	Correct variables created; Select statement correctly used; correct columns selected; correct tables used, linked correctly.	Correct variables created; Correct SELECT statement used. At least one required column not selected; Correct Tables mostly used and linked correctly; minor changes required.	Variables inadequate; Correct SELECT statement used. Required columns inadequate; Tables mostly used but linked incorrectly; major changes required.	Not provided.	
CODE to run procedure	<b>3 - 4</b>	<b>2</b>	<b>1</b>	<b>0</b>	
	Correct code to run procedure; Correct Exception Handling used.	Correct code to run procedure; Exception Handling used; minor changes required.	Major changes required on code and exception handling.	Not provided.	
OUTPUT	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct output achieved; Output Screenshot provided.	Correct output achieved; Output Screenshot not provided.	Correct output is not achieved, Output Screenshot provided.	Not provided.	
COMMENTS	<b>4 - 5</b>	<b>3</b>	<b>1 - 2</b>	<b>0</b>	



	All Procedure sections highlighted, and importance provided as comments.	Correct Comment on code. Procedure sections highlighted; importance partially provided.	Incorrect Comment on code and/or Procedure sections highlighted; importance partially provided.	No Comment provided.	
--	---	--	---	----------------------------	--

**Question 6****(Marks: 20)**

Complete the following:

1. Create a procedure called **spClubRepairDetails** that will accept a customer id as an input parameter and will display the golf club model, and repair date.
2. In your solution, display the data for customer id 'C119' only and provide the code to execute the procedure with exception handling if no data is found.
3. Briefly explain why it is important to separate error-handling routine from the rest of the program. Provide this information as a comment at the end of your code.
4. Provide screenshot of query output.

**Sample Output****CUSTOMER ID: C119, CLUB: L920, REPAIR DATE: 15-JUL-22**

Question 6 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
PROCEDURE Statement	3	2	1	0	
	Correct create procedure statement used.	Create Procedure statement used; Minor changes required.	Create Procedure statement used; Major changes required.	Not provided.	
Variables and SELECT statement	5 - 6	3 - 4	1-2	0	

	Correct variables created; select statement correctly used; Correct columns selected; Correct tables used and linked correctly.	Correct variables created; Correct SELECT statement used. At least one required column not selected; Correct tables mostly used and linked correctly; Minor changes required.	Variables inadequate; Correct SELECT statement used. Required columns inadequate; Tables mostly used but linked incorrectly; Major changes required.	Not provided.	
CODE to run procedure	<b>3 - 4</b>	<b>2</b>	<b>1</b>	<b>0</b>	
	Correct code to run procedure; Correct Exception Handling used.	Correct code to run procedure; Exception Handling used; Minor changes required.	Major changes required on code and exception handling.	Not provided.	
OUTPUT	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct output achieved, Output Screenshot provided.	Correct output achieved; Output Screenshot not provided.	Correct output is not achieved, Output Screenshot provided.	Not provided.	

Comments	4 - 5	3	1 - 2	0	
	Correct Comment on code provided. Explanation emphasises relevance of exception handling.	Correct Comment on code. Explanation partially emphasises relevance of exception handling.	Incorrect Comment on code and/or Explanation partially emphasises relevance of exception handling.	No Comment/ex planation provided.	

**Question 7****(Marks: 20)**

Complete the following:

1. Create a function called **fnClubReport** that will accept a customer id as an input parameter and display the golf club report.
2. In your query, use any customer id as the input parameter and display the customer id, club id, club type, repair date and the club repair amount. Implement appropriate exception handling.
3. List three reasons why a function is most appropriate for this query than a procedure. Provide this information as a comment at the end of your code.
4. Provide screenshot of query output.

**Sample Output****CLUB\_REPORT**-----  
CUSTOMER ID: C122

CLUB ID: 12345

CLUB TYPE: Putter

REPAIR DATE: 18-JUL-22

CLUB REPAIR AMOUNT: R 30

Question 7 Mark Allocation	Levels of Achievement				Feedback
	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
Create or replace function Statement	3	2	1	0	
	Correct create function statement used.	Create Function statement used; minor changes required.	Create Function statement used; major changes required.	Not provided.	
Variables, SELECT statement & Exception Handling	6 - 8	4 - 5	1 - 3	0	
	Correct variables created; Select statement correctly used; Correct columns selected; Correct tables used,	Correct variables created; Correct SELECT statement used. At least one required column not selected; Correct tables mostly used	Variables inadequate; Correct SELECT statement used. Required columns inadequate; Tables mostly used but linked	Not provided.	

	linked correctly. Correct Exception Handling used.	and linked correctly; Exception Handling used. Minor changes required.	incorrectly. Exception Handling used. Major changes required.		
CODE to run the function	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct code to run function;	Minor changes required on code	Major changes required on code	Not provided.	
OUTPUT	<b>2</b>	<b>1</b>	<b>½</b>	<b>0</b>	
	Correct output achieved; Output Screenshot provided.	Correct output achieved; Output Screenshot not provided.	Correct output is not achieved, Output Screenshot provided.	Not provided.	
Comments	<b>4 - 5</b>	<b>3</b>	<b>1 - 2</b>	<b>0</b>	
	Comment on code provided Three appropriate reasons for using Functions listed.	Comment on code correct. At least two appropriate reasons for using Functions listed.	Comment on code incorrect and/or at least one appropriate reason for using Functions listed.	No Comment/explanation provided.	

**END OF PAPER**