



MODULE NAME:	MODULE CODE:
ADVANCED DATABASES	ADDB7311

ASSESSMENT TYPE:	EXAMINATION (PAPER ONLY)
TOTAL MARK ALLOCATION:	70 MARKS
TOTAL HOURS:	2 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 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. Answer All Questions.
5. 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 exam for the module ADDB7311, create a folder named **12345_ADDB7311_EXAM** and use this throughout the session to save all of your files.*
6. **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.*

Create a database in Oracle 11g 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 bus transport company. At present, the database is small and only includes information about buses, customers, locations, bookings and cancellations. 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:

BUS (VIN, BUS_TYPE, NUM_OF_PASSENGERS, BUS_COLOUR, BUS_ODOMETER)

CUSTOMER(CUST_ID, CUST_FNAME, CUST_SNAME, CUST_ADDRESS, CUST_CONTACT)

LOCATIONS (LOCATION_ID, LOCATION_NAME, LOCATION_PROVINCE, LOCATION_PRICE)

BOOKINGS (BOOKING_ID, BOOKING_DATE, VIN, CUST_ID, LOCATION_ID)

CANCELLATIONS(CANCEL_ID, CANCEL_REASON, BOOKING_ID)

Sample Data is shown below:

BUS

VIN	BUS_TYPE	NUM_OF_PASSENGERS	BUS_COLOUR	BUS_ODOMETER
1235251524	Public Transport	100	Red	125835
7235251524	Tourism	150	White	22521
8235251524	Party Events	70	Yellow	352254
9235251524	Private Events	50	Silver	10150
2235251524	Public Transport	100	Silver	11150

CUSTOMER

CUST_ID	CUST_FNAME	CUST_SNAME	CUST_ADDRESS	CUST_CONTACT
C115	Heinrich	Willis	3 Main Road	0821253659
C116	David	Watson	13 Cape Road	0769658547
C117	Waldo	Smith	3 Mountain Road	0863256574
C118	Alex	Hanson	8 Circle Road	0762356587
C119	Kuhle	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

LOCATIONS

LOCATION_ID	LOCATION_NAME	LOCATION_PROVINCE	LOCATION_PRICE
555	Cape Town	Western Cape	895
556	Durban	KwaZulu Natal	325
557	Port Elizabeth	Eastern Cape	755
558	Pretoria	Gauteng	235
559	Johannesburg	Gauteng	899

BOOKING

BOOKING_ID	BOOKING_DATE	VIN	CUST_ID	LOCATION_ID
11101	15 June 2017	1235251524	C115	555
11102	15 June 2017	7235251524	C117	556
11103	17 June 2017	9235251524	C118	557
11104	18 June 2017	2235251524	C115	558
11105	19 June 2017	8235251524	C120	559
11106	20 June 2017	7235251524	C121	556
11107	20 June 2017	1235251524	C122	555
11108	21 June 2017	9235251524	C115	557
11109	25 June 2017	8235251524	C118	559
11111	27 June 2017	8235251524	C119	559

CANCELLATIONS

CANCEL_ID	CANCEL_REASON	BOOKING_ID
210	Customer ill	11111
211	Bad Weather	11106
212	To be rescheduled	11104

Question 1**(Marks: 5)**

Create a SQL query that will display the bus VIN number, customer ID and the booking details for all customers that have cancelled a booking.

Sample Results

VIN	CUST_ID	LOCATION_NAME	BOOKING_DATE	CANCEL_REASON
7235251524	C121	Durban	20 June 2017	Bad weather
2235251524	C115	Pretoria	18 June 2017	To be rescheduled
8235251524	C119	Johannesburg	27 June 2017	Customer ill

Mark Allocation

Requirement	Mark	Examiner
Correct select statement used.	2	
Correct Tables used	2	
Correct output	1	
TOTAL	5	

Question 2**(Marks: 10)**

Create a PL/SQL query to display the customer name and the location the customer will be travelling to. In your query, only display the travel details booked for the 20 June 2017.

Sample Results

anonymous block completed

CUSTOMER: Philip, Jackson

LOCATION: Durban

PARTICIPANTS: 20 June 2017

CUSTOMER: Sarah, Jones

LOCATION: Cape Town

PARTICIPANTS: 20 June 2017

Mark Allocation

Requirement	Mark	Examiner
Variables declared correctly.	3	
Correct select statement used.	3	
Correct Tables used	2	
Correct output	2	
TOTAL	10	

Question 3**(Marks: 15)**

Create a PL/SQL query to display the customer name, the bus VIN, the booking date and the location price. In your query, display if the customer is entitled to a discount. A customer is entitled to a 10% discount, if the location price is greater than or equal to R 500.

Sample Results

anonymous block completed

CUSTOMER: Thando, Zolani

VIN: 8235251524

BOOKING DATE: 19 June 2017

LOCATION PRICE: R 899

DISCOUNT: R 89.9

Mark Allocation

Requirement	Mark	Examiner
Correct variables created	3	
Correct select statement used	3	
Correct use of cursor	3	
Correct use of loop	3	
Correct output	3	
Total	15	

Question 4**(Marks: 10)**

Create a view called Booking_View that will display the number of passengers the bus can transport, the customer ID, customer address and the location province. In your query, only display the results for a booking from the 20 June 2017 to 25 June 2017.

Sample Results

NUM_OF_PASSENGER S	CUST_ID	CUST_ADDRESS	LOCATION_PROVINCE	BOOKING_DATE
100	C122	7 Sea Road	Western Cape	20 June 2017
150	C121	3 Long Road	Kwazulu Natal	20 June 2017
50	C115	3 Main Road	Eastern Cape	21 June 2017

Mark Allocation

Requirement	Mark	Examiner
Create or replace view used	2	
Correct select statement used	2	
Correct tables used	2	
Correct code to run the view	2	
Correct output	2	
Total	10	

Question 5**(Marks: 10)**

Create a trigger called New_Bus_Entry that will prevent an entry of a new bus into the bus table that contains a number of passengers less than zero (0) or more than two hundred (200). In your query, also display the code to test the trigger.

Mark Allocation

Requirement	Mark	Examiner
Create or replace trigger used	2	
Correct use of after insert or update used	2	
Correct variables created	2	
Correct selection statement used	1	
Correct code to display restriction message	1	
Correct code to test the trigger	2	
Total	10	

Question 6**(Marks: 20)**

Create a procedure called BUS_LOCATION_COUNT that will accept a VIN as an input parameter and display the amount of locations the bus has travelled to. In your solution, display the data for any bus and provide the code to execute the procedure with exception handling if no bus information is found.

Sample Results

VIN: 8235251524 has travelled to three locations.

Mark Allocation

Requirement	Mark	Examiner
Create or replace procedure used	4	
Correct variables created	4	
Correct select statement used	4	
Correct code to run procedure	4	
Correct output	4	
Total	20	

END OF PAPER