MODULE NAME:	MODULE CODE:
ADVANCED DATABASE	ADDB7311

ASSESSMENT TYPE:	**TEST (PAPER ONLY)**
TOTAL MARK ALLOCATION:	**60 MARKS**
TOTAL HOURS:	**1 HOUR (+5 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. *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.*
3. *Answer All Questions.*
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_Test**. 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_ADDB_Test** 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 ADDB7311Test_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_Test_Student_Number". Write the path and filename of this document on your test paper.

PRELOADS: ADDB7311Ta_Preload.sql

The following set of relations has been set up for an organization to record employees and their environmental clean-up activities. At present the database is small and only includes information about the employees, locations and environmental activity cleaning. 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:

EMPLOYEES (EMPLOYEE_ID, FIRST_NAME, SURNAME, EMAIL)
LOCATIONS (LOCATION_ID, LOCATION _TYPE, LOCATION_ADDRESS, LOCATION_DIFFICULTY)
ENVIRONMENT_ACTIVITIES (ENV_ID, ENV_DATE, ENV_HOURS, EMP_ID, LOCATION_ID)

Sample Data is shown below:

EMPLOYEES

EMPLOYEE _ID	FIRST_NAME	SURNAME	EMAIL
EMP_1	Jeff	Hendricks	jh@yahoo.com
EMP_2	John	Abelton	johna@gmail.com
EMP_3	Sam	Goodwill	samgo@isat.co.za

LOCATIONS

LOCATION _ID	LOCATION _TYPE	LOCATION_ADDRESS	LOCATION_DIFFICULTY
LOC_1	Beach	10 Seaside Road	6
LOC_2	Forest	13 Treeview Road	5
LOC_3	Lake	18 Waterside Lane	8

ENVIRONMENT_ACTIVITIES

ENV_ID	ENV_DATE	ENV_HOURS	EMPLOYEE_ID	LOCATION_ID
ENV_1	15 July 2022	3	EMP_1	LOC_1
ENV_2	17 July 2022	2	EMP_3	LOC_3
ENV_3	18 July 2022	1	EMP_2	LOC_2
ENV_4	19 July 2022	2	EMP_1	LOC_3

Question 1 **(Marks: 5)**

Create a private synonym called **emp** for the table **EMPLOYEES.** Provide one advantage of using private synonyms.

The Advantage should be provided as a comment on your code.

NOTE: Provide screenshot of your output

	Excellent	Good	Developing	Poor	
	Score Ranges Per Level (½ marks possible)				
Statement & Output	**4 -5**	**3**	**1 - 2**	**0**	
	Correct statement and table used (2) Output Screenshot provided (1) Advantage adequate, comment correctly provided (2)	**One or two of the following are inadequate:** Correct statement and table used. -Output Screenshot provided Advantage adequate, comment correctly provided	**At least two of the following are inadequate:** Correct statement and table used Output Screenshot provided Advantage adequate, comment correctly provided	**Not provided**	

Question 2 **(Marks: 10)**

Create a SQL Query to display the full employee name and the environment cleaning activity difficulty level. In your query also display the number of hours performed for the environment activity.

NOTE: Provide screenshot of your output

Sample Output

EMPLOYEE	LOCATION DIFFICULTY	ENVIRONMENTAL HOURS
Jeff Hendricks	6	3
John Abelton	5	1
Jeff Hendricks	8	2
Sam Goodwill	8	2

Question 2 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 used. Correct columns selected	**One of the following is inadequate/missing:** Correct select statement used. Correct columns selected	**At least one is not provided and inadequate** Correct select statement used. Correct columns selected**:**	**Not provided**	
Tables	**3 - 4**	**2**	**1**	**0**	
	Correct Tables used, L**inked correctly**	**One of the following is inadequate/missing:** Correct Tables used, L**inked correctly**	**At least one is not provided and inadequate** Correct Tables used, L**inked correctly**	**Not provided**	
Query Output	**2**	**1**	**½**	**0**	
	Correct output achieved, Output Screenshot provided	**One of the following is inadequate/not provided:** Correct output achieved, Output Screenshot provided	**At least one is not provided and inadequate** Correct output achieved, Output Screenshot provided	**Not provided**	

Question 3 **(Marks: 10)**

Create a SQL Query to display the full employee name, location id and how many hours are required to meet the monthly target at a certain location. The monthly target for each employee is to perform 10 hours environmental clean-up activities per location.

NOTE: Provide screenshot of your output

Sample Output

EMPLOYEE	LOCATION_ID	HOURS_TO_TARGET
Jeff Hendricks	LOC_1	7
Sam Goodwill	LOC_3	8
John Abelton	LOC_2	9
Jeff Hendricks	LOC_3	8

Question 3 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 used (2). Correct columns selected and correct calculation (2)	**One of the following is inadequate/missing:** Correct select statement used. Correct columns selected and correct calculation	**At least one is not provided and inadequate** Correct select statement used. Correct columns selected and correct calculation:	**Not provided**	
Tables	**3 - 4**	**2**	**1**	**0**	
	Correct Tables used, Linked correctly	**One of the following is inadequate/missing:** Correct Tables used, Linked correctly	**At least one is not provided and inadequate** Correct Tables used, Linked correctly	**Not provided**	
Query Output	**2**	**1**	**½**	**0**	
	Correct output achieved, Output Screenshot provided	**One of the following is inadequate/not provided:** Correct output achieved, Output Screenshot provided.	**At least one is not provided and inadequate** Correct output achieved, Output Screenshot provided.	**Not provided**	

Question 4 **(Marks: 10)**

Create a PL/SQL query to display the employee name and the address where the environmental clean-up took place. In your solution only display the results for an address that contains 'Waterside'.

NOTE: Provide screenshot of your output

Sample Output

EMPLOYEE FIRST NAME: Sam

EMPLOYEE SURNAME: Goodwill

LOCATION ADDRESS: 18 Waterside Lane

EMPLOYEE FIRST NAME: Jeff

EMPLOYEE SURNAME: Hendricks

LOCATION ADDRESS: 18 Waterside Lane

Question 4 Mark Allocation	**Levels of Achievement**				**Feedback**
	Excellent	**Good**	**Developing**	**Poor**	
	Score Ranges Per Level (½ marks possible)				
Declarations & Select Statement	**3 -4**	**2**	**1**	**0**	
	Correct variables declared (2) select statements correctly used (2).	**One of the following is inadequate/not provided:** Correct variables declared select statements correctly used.	**At least One of the following is inadequate and not provided:** Correct variables declared select statements correctly used.	**Not provided**	
Tables & Output	**5 - 6**	**3 - 4**	**1 - 2**	**0**	
	Correct tables used (2), Linked correctly (2) Output achieved (1) Output Screenshot provided (1).	**One or two of the following missing/inadequate:** Correct tables used, Linked correctly; Output achieved; Output Screenshot provided;	**At least two of the following missing/inadequate:** Correct tables used, Linked correctly; Output achieved; Output Screenshot provided;	**Not provided**	

Question 5 (Marks: 15)

Provided below is a PL/SQL query to display the employee id and the average amount of hours the employee has spent performing environmental clean-up activities.

You are required to complete the following:

1. Rewrite the query using a manual explicit cursor.
2. Provide comments on your code, against the cursor statements, explaining the role of each cursor statement introduced in your query.
3. Provide screenshot of query output.

```
set serveroutput on
declare
 emp_id varchar2(50);
 total  number(8,2);
cursor info is
select e.employee_id, avg(ev.env_hours) as TOTAL_HOURS
 from EMPLOYEES e, ENVIRONMENT_ACTIVITIES ev
 where e.employee_id = ev.employee_id  and e.employee_id = 'EMP_1'
 group by e.employee_id;
begin
for rec in info
loop
 emp_id:= rec.employee_id;
 total:= rec.TOTAL_HOURS;
 dbms_output.put_line('EMPLOYEE ID:    ' ||  emp_id || chr(10)  || 'AVERAGE HOURS:    ' ||
total);
 dbms_output.put_line('-------------------------------------');
 end loop;
end;
```

Sample Output

```
-------------------------------------
EMPLOYEE ID: EMP_1
AVERAGE HOURS: 2.5
```

Question 5 Mark Allocation	**Levels of Achievement**				**Feedback**
	Excellent	**Good**	**Developing**	**Poor**	
	Score Ranges Per Level (½ marks possible)				
Declarations & Select Statement	**3 - 4**	**2**	**1**	**0**	
	Correct variables declared (2) and select statements used (2)	**One of the following is inadequate/not provided:** Correct variables declared and select statements used	**At least one of the following is not provided and inadequate**	**Not provided**	
Cursor Statements	**3**	**2**	**1**	**0**	
	Required cursor statements provided correctly (3)	Required cursor statements provided correctly (at least two)	At least one cursor statement provided correctly	**Not provided**	
Comments and output achieved	**6 - 8**	**4 -5**	**1 - 3**	**0**	
	Adequately explained purpose of each cursor statement in the code, provided as comment (6) Output achieved (1) Output screenshot provided (1)	Comments provided, not complete or inadequately explained Output achieved or Screenshot provided	Comments missing/inadequate Output not achieved or screenshot not provided	**Not provided**	

Question 6 **(Marks: 10)**

Create a view called **vwEmployeeHours** that will display the employee email address, location type, location difficulty and environmental hours. In your solution only display the results between 2 and 3 environmental hours performed.

Sample Output

EMAIL	LOCATION TYPE	LOCATION DIFFICULTY	ENV HOURS
jh@yahoo.com	Beach	6	3
jh@yahoo.com	Lake	8	2
samgo@isat.co.za	Lake	8	2

Question 6 Mark Allocation	Levels of Achievement				Feedback
	Excellent	**Good**	**Developing**	**Poor**	
	Score Ranges Per Level (½ marks possible)				
View Statement	**5-6**	**3-4**	**1-2**	**0**	
	• Correct CREATE statement used (1), • Correct variables declared (1) • Correct SELECT statement used in the view (4).	• Correct CREATE statement used, • Correct variables declared • SELECT statements used in the view, with some errors.	• Correct CREATE statement used, • No variables declared • SELECT statement provided with important information omitted.	No View Statement	
Tables and Output	**3 -4**	**2**	**1**	**0**	
	• Correct tables used (2). • Output achieved; Screenshot of output provided (2).	• Some tables missed. • Output not achieved; Screenshot of output provided.	• Most tables missed. • Output not achieved; Screenshot of output provided.	Not provided	

END OF PAPER