



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Examination Answer Books

12 Pages

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.

Complete, fold and seal
(see note 2 below)

SURNAME: Samuel

FORENAME(S): Daniel

1	Student Number	DS136996
2	Title of Examination Paper	Database Management Systems
3	Module Code	ACCA5014
4	Date and Time of Examination	9.08am 8th May 2019
5	Examination Venue	G42
6	Seat Number	
7	Number of Answer Books handed in	1

List the numbers of the questions you have attempted	Office Use
1a	
2a	
2b	
3a	
3b	
3c	
4b	
4d	
1	11 1/2 ✓
2	8 ✓
3	13 ✓
	2
Total	32 1/2 43% ✓

19.

CREATE TABLE TutorBooking ~~Table~~
~~BookingDate~~ BookingDate DateTime no null,
~~SubjectLevel~~ SubjectLevel Int no null

CREATE TABLE TutorBooking ✓
 BookingDate DateTime no null CHECK(< Date())
 SubjectLevel Int no null
 HourlyRate Float no null;

4 fields missing

Go

bbl.

AMEND TutorBooking
 BookingRef. Int PRIMARY key (1, 1)
 TutorNo Int FOREIGN key (References Tutor)
 StudentNo Int FOREIGN key (References Student)
 SubjectID Int FOREIGN key (References Subject)

Go

iv

CREATE TABLE TutorSubject
 TutorNo Int PRIMARY key (1, 1)
 SubjectID Int PRIMARY key (1, 1)
 KSLevel Int No Null
 ALevel Int No Null
 HELEVEL Int CHECK (HELevel >= 6)
 MINHourlyRate Float
 MAXHourlyRate Float;

Grouped

Go

USING Personal Tutors

AIC NOT
AS Good as

i: SELECT * FROM Tutors
 Where DBS EXPIRYDate > '05/19'
 SORT BY DBS Expiry Date Desc

ii: ~~AMEND Tutors~~
~~INSERT INTO Tutors~~ ~~AMEND~~ AMEND Tutors
 Where DBS EXPIRY Date < Date()
 STATUS = 'Pending DBS Check'

iii: ~~SELECT~~

MIN(Tutor Fee)

MAX(Tutor Fee)

AVG(Tutor Fee)

- 2 a ~~An~~ Internal: An Internal Schema is how people developing the database would see it.
 External: An External Schema is what an end user would see.
 Conceptual: A conceptual schema is a broad view of the entire DB.

b
 i An index is like a marker which someone would put on a column in a table. The aim of an index is to improve efficiency when running a query.

ii analysing transactions before indexing is important because it gives DBAs a chance to see which queries are being ran the most on which fields in particular.

iii I would index the city field. When doing this, you will be able to find all tutors living within a ~~certain~~ certain area.

using PersonalTutors

CREATE INDEX CITY

iv

For a Secondary Index, I would set on status, a query can be made then to see which tutors are available at a certain time on a certain day.



Question No.

V

Using Personal Tutor

Insert INTO Student

('Martin', 'Thomas,

0

8
✓

3 Security

a

1 Security threats

Unauthorised external threats - This is an issue if someone outside the company gains access to the databases as data could be stolen and distributed to criminals who wish to ~~pre~~ harm the company in some shape or form.

Unauthorised external threats - If someone who works for the company gains access to a database they shouldn't have access to data they shouldn't be able to see. For example, Sales department shouldn't have access to payment details of other employees.

Giving your ^{login} password to someone else

Giving your password to someone else brings to same risks as someone else having access to certain databases but due to this being deliberate, more substantial risks could ~~be~~ occur such as data leaks.

5

b Authentication

- i. Giving each member of staff a username & password can give only certain people access to certain parts of the system, files & software. If there were no sort of Authentication on a system then any employee would be able to see every bit of data on each table. ~~using methods such as DAC and MAC~~ This can ensure everybody who login to the system is allowed to. 2 ✓
- ii. Limiting people to certain data is important as if someone had access to everything they would look at it even if not for a malicious reason. Privileges ~~are~~ can be granted and/or revoked depending on the position and work performance of an individual. 2 ✓
- iii. Views are a good way to show people just the information they need access to. For example, in the sales view they wouldn't have access to payment details for staff or customers but just the necessary fields they need to complete a sale. 2 ✓

C:

CREATE VIEW

dbs. Tutor. ~~First~~ FirstName

dbs. Tutor. Surname

dbs. Tutor. email

dbs. ~~location~~ Tutor. location.

2

13

Question No.

4.

a —

b - Concurrency Control tries to smooth out any issues a database may face.

- d
- i T₄ - the chart indicates the transaction failed
 - ii T₁ - The chart indicates the transaction was aborted.
 - iii T₃ - during the transaction process a checkpoint occurs

Student Number: D3136996.....

Time	T ₁	T ₂	bal _x (£500)
t1		BEGIN TRANS	500
t2	BEGIN TRANS	Read bal _x	
t3	Read bal _x	bal _x = bal _x + 100	600
t4	bal _x = bal _x - 50	Write bal _x	550
t5	...	COMMIT	
t6	Write bal _x		
t7	COMMIT		

Table 1: Table for Question 4c.ii.