Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018

COURSE NAME	:	DATABASE SYSTEM
COURSE CODE	:	BIC 21404
PROGRAMME CODE	:	BIS/BIP/BIW/BIM
EXAMINATION DATE	:	JUNE / JULY 2018
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS.

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1 (a) List **FIVE (5)** relational set operators.

(5 marks)

(b) Identify **FIVE (5)** attributes of a `ProductDetail` relation.

(5 marks)

Q2 Answer **Q2(a) – Q2(g)** based on table `CUSTOMERS` in **Figure Q2**.

ID	NAME	AGE	ADDRESS	SALARY
1	Ramesh	32	Ahmedabad	2000.00
2	Khilan	25	Delhi	1500.00
3	kaushik	23	Kota	2000.00
4	Chaitali	25	Mumbai	6500.00
5	Hardik	27	Bhopal	8500.00
6	Komal	22	MP	4500.00
7	Muffy	24	Indore	10000.00

Figure Q2

(a) Show the result of fetching the `ID`, `Name` and `Salary` fields where salary is greater than 2000.

(2 marks)

(b) Write SQL command based on **Q2(a)**.

(3 marks)

(c) Write SQL command and show a result of fetching the `ID`, `Name` and `Salary` fields for a customer with the name `Hardik`.

(3 marks)

(d) Write SQL command of all the records where `Salary` starts with 200.

(3 marks)

(e) Write the basic syntax of the SELECT statement with a condition.

(3 marks)

(f) Write the basic syntax of the SELECT statement with more than one conditions.

(3 marks)

(g) Write SQL command of fetching the `ID`, `Name` and `Salary` fields where `Salary` is greater than 2000 or the age less than 25 years.

(3 marks)

Q3 (a) List **TWO (2)** database security issues.

(2 marks)

(b) Explain database threat.

(2 marks)

(c) List **THREE (3)** examples of database theft and fraud.

(3 marks)

(d) Explain database management system (DBMS) and Web securities.

(3 marks)

Q4 (a) Normalize **Figure Q4(a)** in First Normal Form.

(6 marks)

StaffBranch

staffNo	sName	position	salary	branchNo	bAddress
SL21	John White	Manager	30000	B005	22 Deer Rd, London
SG37	Ann Beech	Assistant	12000	B003	163 Main St, Glasgow
SG14	David Ford	Supervisor	18000	B003	163 Main St, Glasgow
SA9	Mary Howe	Assistant	9000	B007	16 Argyll St, Aberdeen
SG5	Susan Brand	Manager	24000	B003	163 Main St, Glasgow
SL41	Julie Lee	Assistant	9000	B005	22 Deer Rd, London

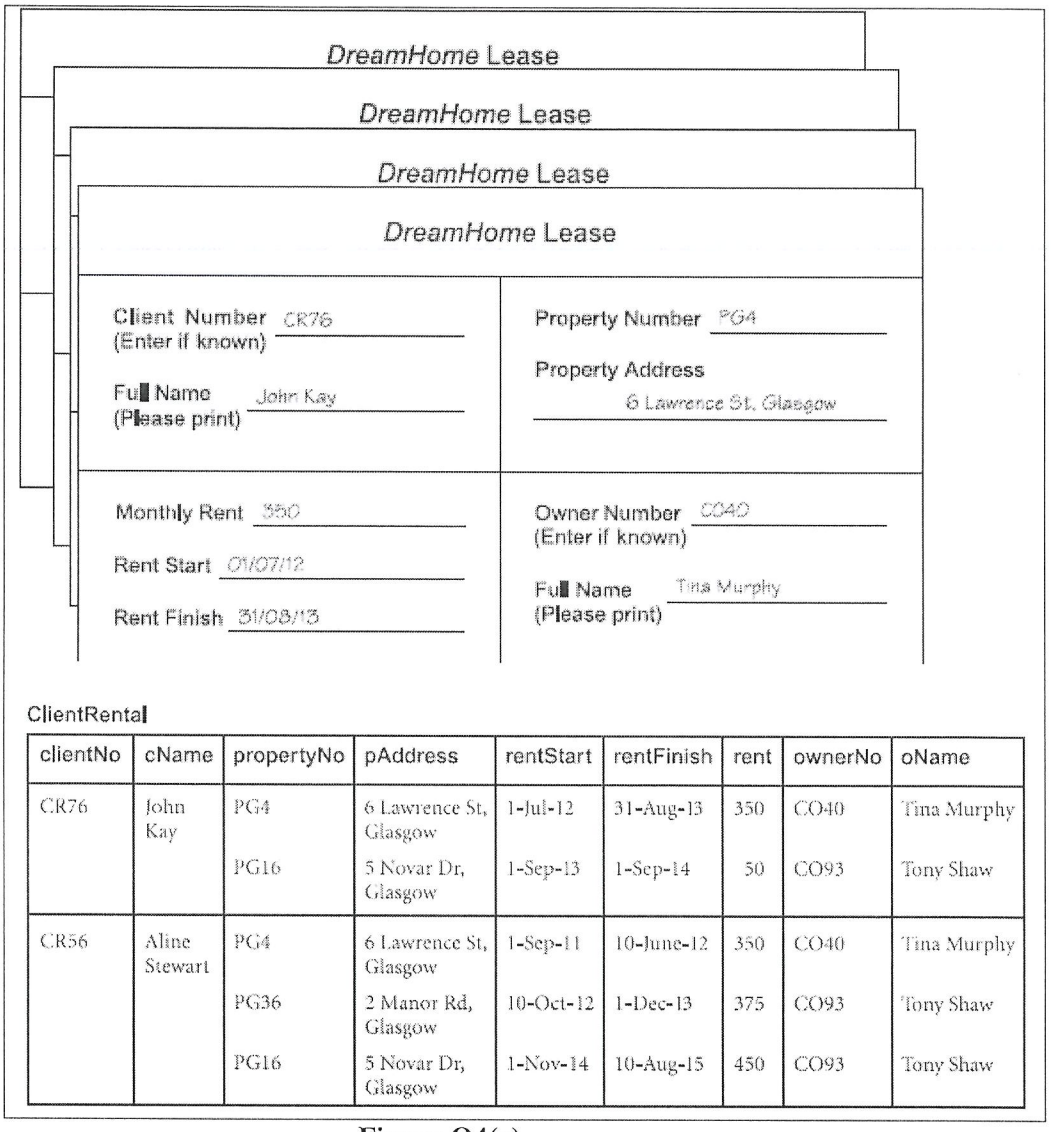
Figure Q4(a)

(b) Explain an example of insertion anomaly based on **Figure Q4(a)**.

(4 marks)

(c) Normalize information in **Figure Q4(c)** into First Normal Form, Second Normal Form and Third Normal Form.

(15 marks)



ClientRental

clientNo	cName	propertyNo	pAddress	rentStart	rentFinish	rent	ownerNo	oName
CR76	John Kay	PG4	6 Lawrence St, Glasgow	1-Jul-12	31-Aug-13	350	CO40	Tina Murphy
		PG16	5 Novar Dr, Glasgow	1-Sep-13	1-Sep-14	50	CO93	Tony Shaw
CR56	Aline Stewart	PG4	6 Lawrence St, Glasgow	1-Sep-11	10-June-12	350	CO40	Tina Murphy
		PG36	2 Manor Rd, Glasgow	10-Oct-12	1-Dec-13	375	CO93	Tony Shaw
		PG16	5 Novar Dr, Glasgow	1-Nov-14	10-Aug-15	450	CO93	Tony Shaw

Figure Q4(c)

(d) Draw an Entity Relationship Diagram (ERD) for third normal form relations derived from the `ClientRental` relation.

(5 marks)

Q5 Answer **Q5(a) – Q5(c)** based on **Figure Q5**.

A group of students that consists of Alif, Lim, Firdaus, Atiqah, Jagan, Hanariah, Chiyee, Ellya and Michelle have found the update anomalies at Library Database between Borrower and Book entities. There are a few books with the same ISBN and title may be sold or borrowed. The sold books stated the dates and prices whereas borrowed books stated the periods that are mandatory.

Figure Q5

(a) Draw an ERD for solving the update anomalies.

(10 marks)

(b) Based on the given answer for **Q5(a)**, state **THREE (3)** primary keys.

(6 marks)

(c) Based on the given answer for **Q5(b)**, state **TWO (2)** foreign keys.

(4 marks)

Q6 Answer **Q6(a) – Q6(c)** based on **Figure Q6**.

Akmal would like to implement the Clinical Patient Appointment database system via Internet.

Figure Q6

(a) Draw a 3-Tier architecture distributed database management system (DDBMS).

(5 marks)

(b) Based on the scenario in **Q6(a)**, suggest one Web-based Programming language can be used to connect the database server.

(2 marks)

(c) Describe **THREE (3)** potential problems that caused Akmal fail in filling up online appointment form.

(3 marks)

- END OF QUESTION -