



## FINAL SEMESTER EXAMINATION

Student NRIC : \_\_\_\_\_  
Student ID : \_\_\_\_\_

Programme	:	<b>DIPLOMA IN COMPUTER SCIENCE (MQA/PA13808)</b>
		<b>DIPLOMA IN E-BUSINESS TECHNOLOGY (MQA/PA13807)</b>
Intake	:	<b>MAY/JUNE 2021 (YEAR 1 SEMESTER 2)</b>
Course	:	<b>DATABASE MANAGEMENT SYSTEM</b>
Course Code	:	<b>DCS2233 / DEB2113</b>
Duration	:	<b>3 hours</b>

### INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY**.
2. This question paper consists of **FOUR (4)** questions
3. Answer **ALL** questions in the question paper.
4. Answers to the questions are to be written into the examination booklet.
5. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

### WARNING:

The Examination Board of Peninsula College Georgetown regards cheating as a very serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in the accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

*(This booklet contains 5 printed pages including this page)*

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ALLOWED TO DO SO**

For examiner's use only

QUESTION NO.	MARKS
1	/ 25
2	/ 25
3	/ 25
4	/ 25
<b>Total</b>	<b>/ 100</b>

Answer **ALL** questions on the separate sheet provided.

**[100 marks]**

1. a) Normalize the table below from UNF into 3NF.

Invoice		Customer			Service			Total (RM)
No	Date	No	Name	Contact	No	Description	Charge (RM)	
1239	2/3/15	511	Mike	012-4358767	55	Oil Filter	85	320
					58	Engine Oil	180	320
					99	Labour	55	320
1240	6/3/15	324	Bell	017-8756447	15	Metal Shine	70	190
					17	Metal Grind	50	190
					19	Plug	15	190
					99	Labour	55	190
1241	9/3/15	255	Betty	019-6579044	20	Sensor	115	170
					99	Labour	55	170

(15 marks)

b) Identify the functional dependencies for the table below and transform into 1NF table. (10 marks)

OID	O Date	CID	C Name	C State	PID	P Desc	P Price	Qty
1006	10/24/09	2	Apex	NC	7, 5, 4	Table, Desk, Chair	800, 325, 200	1, 1, 5
1007	10/25/09	6	Acme	GA	11, 4	Dresser, Chair	500, 200	4, 6

Total: [25 marks]

2. a) Identify and describe **THREE (3)** types of update anomalies with the help of examples which based on the following table. (9 marks)

**Table Name:** *StudentDepartment*

Student ID	Student Name	Department No	Department Name	Society
SCKL01	Danny Chia	AC01	Computing School	Technology Club
SCKL01	Danny Chia	AC01	Computing School	Coding Club
SCKL02	Chris Ooi	AC02	Business School	Marketing Club
SCKL02	Chris Ooi	AC02	Business School	Entrepreneur Club
SCKL03	Adrian Keng	AC03	Engineering School	Robot Club
SCKL03	Adrian Keng	AC03	Engineering School	Electronic Club

- b) Refer to the following schema, write a SQL statement to answer the questions below.

Glove( <u>stockNo</u> , size, colour, type, price)
--

- i) Construct the table. (7 marks)
- ii) Delete the table. (1 mark)
- iii) Add a piece of the record below inot the table. (3 marks)

Stock No	Size	Colour	Type	Price (RM)
A36	7	Blue	Medical	12

- c) Provide any **FIVE (5)** computer-based security controls for a multi-user environment. (5 marks)
- Total: [25 marks]

3. a) The table below shows the staff details in Peninsula College Georgetown. Create a SQL statement to produce the following instructions using the table provided.

**Table Name:** Staff

Staff ID	Staff Name	Position	Age	Joining Date	Salary (RM)
PCN001	Steven Ho	Head of Sales & Marketing	42	02/08/2010	5 500
PCN002	Danny Lee	Sales Supervisor	38	04/05/2015	4 000
PCN003	Vincent Loh	Senior Course Counsellor	30	05/06/2017	3 000
PCN004	Nicholas Tan	Senior Course Counsellor	29	03/07/2017	2 800
PCN005	Eunice Yong	Course Counsellor	23	02/12/2019	2 300
PCN006	Elaine Tan	Course Counsellor	22	02/03/2020	1 900

- i) Show all records with staff ID, staff name and position only. (2 marks)
  - ii) Sort the records according to the staff name in descending order. (3 marks)
  - iii) Find the average salary of the staff with the age of 30 and above. (3 marks)
  - iv) Display the staff name and position which the age is below 40 and the salary is lower than RM 5 000. (4 marks)
  - v) Print the staff name who the job role is course counsellor and the salary is more than RM2000. (4 marks)
- b) Based on the scenario below, draft an Entity Relationship Diagram (ERD) by using **Chen Notation**. (9 marks)

A company has several employees. The employee has employee number, name, and address. The company handles several projects which described with project code, name and start date. Every employee is involved in at least one project. Each project should involve at least one employee. The company has several departments which described with department code and name. A department has at least one employee. Each employee works in one department only.

Total: [25 marks]

4. a) According to the entities and relationship below,

<b>TEAM</b>
<u>Team ID</u> Team Name Slogan

<b>MATCH</b>
<u>Match ID</u> Date Venue

**Relationship:**

One team may participate in one or more match whereas a match is joined by at least two teams.

- i) Illustrate a relationship diagram in conceptual design. (2 marks)
- ii) Draw a relationship diagram with multiplicity in logical level. (4 marks)
- iii) Prepare the relational schema of all the tables. (3 marks)

b) Distinguish the differences between:

- i) Simple Attribute and Composite Attribute (4 marks)
- ii) Fan Traps and Chasm Traps (4 marks)

c) Elaborate an abbreviation, DDL with an example. (3 marks)

d) List **FIVE (5)** advantages of the relational model. (5 marks)

Total: [25 marks]

**- END OF QUESTIONS -**