



PENINSULA
COLLEGE
GEORGETOWN

FINAL EXAMINATION

Programme Name	:	DIPLOMA IN COMPUTER SCIENCE DIPLOMA IN E-BUSINESS TECHNOLOGY
Course Code & Name	:	DCS2233 DEB2113 DATABASE MANAGEMENT SYSTEM
Duration	:	3 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY**.
2. The 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 3 printed pages including this page)
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ALLOWED TO DO SO

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

[100 marks]

1. a) Explain in detail the **THREE (3)** phases in database design. (12 marks)

- b) Identify **THREE (3)** components in Entity-Relationship modelling. (6 marks)

- c) Draw a database schema based on the information given in **Information 1**. (7 marks)

The aim is to model course registration information. The information is as follows :

- The entities are courses and instructors.
- Each instructor has a name and a phone number.
- Each course has course number and title.
- Instructors teach courses.

Information 1

Total: [25 marks]

2. a) State **FOUR (4)** types of relationship set. (4 marks)

 - b) Discuss **THREE (3)** rules of Entity Relationship modelling design. (6 marks)

 - c) Explain **THREE (3)** defects of unnormalized tables. (6 marks)

 - d) Describe **THREE (3)** disadvantages of denormalization. (9 marks)
- Total: [25 marks]
3. a) Design the output of First Normal Form (1NF) based on the original database table shown in **Table 1**. (17 marks)

Student Name	Course
Ani Rini	VP, DBMS
Maher Ruhi	DBMS, IITA, SAD
Bryan Ray	TTM, OOP, RIS, C++

Table 1

b) Question 3(b)(i) until 3(b)(iv) based on Figure 1.

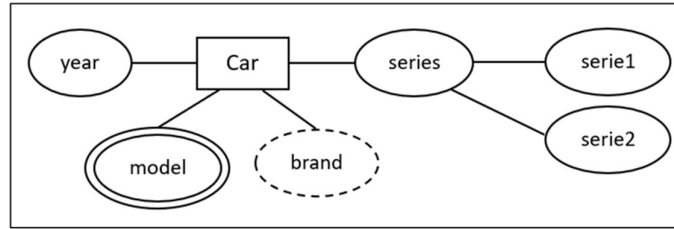


Figure 1

Identify the type of attribute for the following attributes:

- i) year (2 marks)
 - ii) model (2 marks)
 - iii) brand (2 marks)
 - iv) series (2 marks)
- Total: [25 marks]

4. a) Explain the following database security: (6 marks)
- i) Authorization
 - ii) Backup and recovery
 - iii) Encryption
- b) Discuss in detail the **FOUR (4)** basic properties of ACID. (12 marks)
- c) Describe **TWO (2)** general techniques to overcome deadlocks. (7 marks)
- Total: [25 marks]

- END OF QUESTIONS -