



FINAL
Examination Paper

(COVER PAGE)

Session : April 2014

Programme : Diploma In Information And Communication Technology (DICTN)

Course : ICT1104 : Database Management

Date of Examination : July 23, 2014

Time : 2:00pm – 4:00pm Reading Time: Nil

Duration : 2 Hours

Special Instructions :

Answer any **FOUR (4)** questions.

Materials permitted : Nil

Materials provided : Nil

Examiner (s) : Ms. Koo Lee Chun, Mahaletchumy Ramakrishnan

Moderator : Ms. Leong Siok Jen

This paper consists of 5 printed pages, including the cover page.

INTI INTERNATIONAL COLLEGE SUBANG

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY (DICTN)
ICT1104: DATABASE MANAGEMENT
FINAL EXAMINATION: APRIL 2014 SESSION

Instructions: This paper consists of **SIX (6)** questions. Answer any **FOUR (4)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

- (a) Briefly explain **THREE (3)** reasons why would an organisation choose a database system instead of simply storing data in a file system. (6 marks)
- (b) Distinguish between data and information. Provide an example for each to support your answer. (6 marks)
- (c) Define DBMS. Provide **TWO (2)** examples of DBMS software available in the market. (4 marks)
- (d) Explain the use of view mechanism in DBMS and briefly explain **FOUR (4)** benefits of view mechanism in DBMS environment. (9 marks)

Question 2

- (a) Name the **EIGHT (8)** stages of Database Applications Life Cycle. (8 marks)
- (b) Discuss **THREE (3)** benefits of client-server database architecture. (6 marks)
- (c) Briefly explain the following terms : (6 marks)
- (i) Tuple
 - (ii) Domain
 - (iii) Referential Integrity
- (d) What is derived attribute? Discuss **TWO (2)** advantages and **TWO (2)** disadvantages of not storing the derived attribute in database. (5 marks)

Question 3

Analyse the following data stored in a typical college file to record information with regard to students, courses, modules and class room. Essentially, a student is enrolled onto a course and may take several modules as part of this course.

StudentID	StudentName	CourseID	CourseDuration	ModuleID	ModuleName	ClassRoom
C0123456	Mike	C101	3	M360	Database	LR505
				M301	WebTech	LR515
				M102	Software	LR403
C0212345	Anne	C102	4	M201	BusinessIT	LR512
				M203	MusicTech	LR303
				M102	Software	LR403
C0321234	Jack	C103	5	M301	WebTech	LR515
				M103	Network	LR409
				M360	Database	LR505
				M201	BusinessIT	LR512
C0432123	Helen	C104	4	M203	MusicTech	LR303
				M102	Software	LR403
				M360	Database	LR505
C0543212	Ben	C101	3	M102	Software	LR403
				M201	BusinessIT	LR512
				M203	MusicTech	LR303
				M301	WebTech	LR515

- (a) Identify the insertion, deletion and modification anomalies for the college file above. Provide an example to support each of your answer. (9 marks)
- (b) Besides the anomalies issues, provide **ONE (1)** disadvantage of a relation without the normalisation. (2 marks)
- (c) Normalise the relation show in college file above, showing the development of the design (including functional dependency if there is any) through the forms 1NF, 2NF and 3NF. Indicate the primary and foreign keys for each of the relevant entities. (14 marks)

Question 4

Consider the following relations. An employee can work in more than one department; the pct_time field of the Works relation shows the percentage of time that a given employee works in a given department. Department relation shows the department information and manager ID who in charge of controlling a given amount of the budget.

Employee(employeeID, name, age, salary)

Works(employeeID, departmentID, pct_time)

Department(departmentID, name, budget, managerID)

- (a) Write an SQL statement for the following based on the table given above :
- (i). Display all employeeID and percentage of time work between 4 and 6 hours. (4 marks)
 - (ii). Update the salary of the employeeID E1234 to RM3000 (3 marks)
 - (iii). Insert a new department record into the department table. (3 marks)
- (b) Based on the same tables above, define the following query in design grid form (Query Design View) for question 4 (b) (i)-(iii).
- (i). List out all the department name and managerID where the department name start with "ST". (4 marks)
 - (ii). Create an parameter query to delete an employee record from the employee table based on the employeeID entered. (4 marks)
 - (iii). Display all the employee's name sorted according to descending order who earn more than 5000 and age below or equal 45. (7 marks)

Question 5

- (a) List and explain in order anatomy of reports. (7 marks)
- (b) Database objects should be named with a consistent naming convention. Provide **FOUR (4)** restrictions when naming a database object. (6 marks)
- (c) List and briefly explain any **SIX (6)** data types supported by MS Access. (12 marks)

Question 6

Based on the scenario below, answer Questions 6 (a) and (b) :

SuperDVD is DVD rental company. The company needs a way to keep track of customer rental information. The company maintains a list of customer, identified by unique CID's (customer identifiers) and a list of DVD's, identified by DVDID's (DVD identifiers). With each customer are the name and contact number which the company may call to get the DVD back. With each DVD is the star actor name and title. A customer is allowed to borrow maximum of 6 DVD per transactions. Whenever a customer borrows a DVD, the operator will enter that fact into the database along with the date borrowed, and date to return. Whenever a customer returned the DVD the fact along with the date returned will be noted as well. The company wants to keep a complete history of its customers' borrowing habits to assists in their promotion activities. Besides that, the company also maintains a list of supplier, identified by unique SID's (supplier identifiers). With each supplier is the company name and contact number. Whenever the company ordered a DVD from the supplier, the order date, quantity and cost will be recorded. The company may order a same DVD from one or more suppliers.

- (a) Develop an Entity Relationship Diagram (ERD) based on above scenario. Remember to indicate the multiplicity of each relationship (e.g. one-to-many) using the appropriate notation. If you feel that you must make some assumptions, state them clearly. (11 marks)
- (b) Develop a relational model based on the ERD developed in Question 6 a (i). Indicate the primary and foreign keys for each of the relevant relations. (14 marks)

-- The End --