

FINAL
Examination Paper

(COVER PAGE)

Session : August 2015

Programme : Diploma In Information And Communication Technology (DICTN)

Course : ICT1104: Database Management

Date of Examination : December 7, 2015

Time : 5.00pm – 7.00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

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

Materials permitted : Nil

Materials provided : Nil

Examiner(s) : Mr. Koo Lee Chun, and Mr. Tang Yang Tze

Moderator : Ms. Noor Hasrina

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

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY (DICT/N)
ICT1104 : DATABASE MANAGEMENT
FINAL EXAMINATION: AUGUST 2015 SESSION

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) Define data, information and database. (6 marks)
- (b) Explain what is meant by **DBMS** and give **THREE (3)** examples of commercial DBMS. (5 marks)
- (c) Briefly describe any **THREE (3)** people/personnel involving in database environment. (6 marks)
- (d) Briefly explain **FOUR (4)** advantages of database system compare to file-based system. (8 marks)

Question 2

- (a) List and explain **THREE (3)** basic types of relationships in database model. Support your answer with suitable examples. (6 marks)
- (b) Define derived attributes and briefly explain **ONE (1)** advantage and **ONE (1)** disadvantage of no storing derived attributes physically. (5 marks)

- (c) Based on the following scenario, creates an Entity-Relationship Diagram (ERD).

When a new student is registered, a new ID will be generated and student data (name, IC, address, contact, status) will be recorded. A student can take one or more courses in a semester. A student can retake a course in another semester. The course information includes course code, title, description, credit, category, and status. After registration is completed, student has to make full payment for the semester. The payment details (payment no, date, amount, payment type, amount, student ID, semester) will be recorded. Upon the completion of a semester, student will get a result (grade) for every course.

(14 marks)

Question 3

- (a) Define the following terms in relation to database concept :

- (i) Primary Key
- (ii) Foreign Key
- (iii) Candidate Key

(6 marks)

- (b) Update anomalies are potential problems in relations without normalization that contain redundant data. Briefly explain **THREE (3)** categories of update anomalies.

(6 marks)

- (c) Given the below relation :

```
ORDER(order#, customer#, name, address, orderdate{product#,
description, quantity, unitprice})
```

Normalize the relation to 3NF. Show your working steps clearly (including functional dependencies and explanation).

(13 marks)

Question 4

- (a) Explain the use of the following field properties in Microsoft Access. For each, give a suitable example.

- (i) Default Value
- (ii) Validation Rule
- (iii) Input Mask

(9 marks)

- (b) Based on table given, answer question 4 (b) (i) – (ii)

Date	Name of Client	Product	Quantity	Amount
			Sold	Paid
2005-12-08	Peter	Bike	2	\$32,43
2005-12-09	John	Ski	4	\$234,90
2005-12-10	Mark	Boat	65	\$456,98
2005-12-11	Louis	Ski	34	\$34,98
2005-12-12	Mary	Boat	23	\$2,345,87
2005-12-13	Peter	Bike	43	\$234,00
2005-12-14	Louis	Bike	23	\$876,45

- (i) What is the total number of tuples ?
- (ii) List all the attributes and state the most suitable data type for each of them.

(6 marks)

- (c) List **FIVE (5)** types of useful form controls. Briefly explain their usage.

(10 marks)

Question 5

- (a) Briefly explain **TWO (2)** types of relational integrity in a relational database.

(5 marks)

- (b) Identify **FOUR (4)** basic objects of Microsoft Access. Describe their purposes.

(12 marks)

- (c) Database objects should be named with a consistent naming convention. Provide **FOUR (4)** restriction when naming a database object.

(8 marks)

Question 6

Consider the following relations:

Video (videoID, movieID)

Movie (movieID, name, filmType, dateRelease, rating)

Loan (loanID, videoID, borrowerID, dateBorrowed, dateDue, charges)

Borrowers (borrowerID, name, address, contactNo)

- (a) Define the following request in design grid form (Query Design View)
- (i) List all the movie information with rating more than 5 and sort the result based on movie name in descending order. (5 marks)
 - (ii) Create a parameter query to update the loan charges with 8% increased based on the loan id entered. (4 marks)
 - (iii) Create an parameter query to delete a borrower record from the Borrowers table based on the borrower-ID entered. (4 marks)
- (b) Write an SQL statement for the following :
- (i) Display all loan information with due date in the month of Jan 2015 (4 marks)
 - (ii) Insert a movie information for movie id 123 (4 marks)
 - (iii) Update the movie name to "Beauty and the Beast" for movie id 456 (4 marks)

