INTI International University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session	:	**APRIL 2018**
Programme	:	Diploma In Information And Communication Technology (DICTN) Diploma In Information Technology (DITN)
Course	:	**ICT1104: Database Management**
Date of Examination	:	August 02, 2018 (Thursday)
Time	:	11:00am – 1:00pm Reading Time : Nil
Duration	:	2 Hours

Special Instructions :

SECTION A: Answer **All** questions
SECTION B: Answer **THREE (3)** questions

IMPORTANT NOTE: THIS PAPER SHOULD NOT BE TAKEN OUT OF THE EXAMINATION HALL

Materials permitted :

Nil

Materials provided :

OMR Sheets

Examiner(s)	:	**Mahaletchumy Ramakrishnan** and Light Lau Teng Lye
Moderator	:	Noor Hasrina

*This paper consists of **8** printed pages, including the cover page*

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY (DICTN)
DIPLOMA IN INFORMATION TECHNOLOGY (DITN)
ICT1104: DATABASE MANAGEMENT
FINAL EXAMINATION: APRIL 2018 SESSION

Section A (40 marks)

Instruction: This section consists of **twenty (20)** questions. Answer **ALL** questions in the OMR sheets provided.

1. Raw facts from which the required information is derived know as _____.

   A. Data
   B. Information
   C. Field
   D. Record

2. Which of the following is referred as a character or a group of characters (numeric or alphanumeric) that describes a specific characteristic.

   A. Row
   B. Field
   C. Column
   D. Table

3. A logically connected set of one or more fields that describes a person, place, event, or thing is called _____.

   A. File
   B. Folder
   C. Record
   D. Directory

4. A collection of related records that contain information of interest to the end user is referred as _____.

   A. Database
   B. File
   C. Dictionary
   D. System

5. A(n) _____'s main function is to help one understand the complexities of the real-world environment.

   A. Node
   B. Entity
   C. Model
   D. Database

6. A(n) _____ is anything about which data are to be collected and stored.

   A. Attribute
   B. Entity
   C. Relationship
   D. Constraint

7. A(n) _____ is the equivalent of a field in a file system.

   A. Attribute
   B. Relationship
   C. Record
   D. Constraint

8. From a database point of view, the collection of data becomes meaningful only when it reflects properly defined _____.

   A. Business rules
   B. Business norms
   C. Business goals
   D. Business plans

9. The hierarchical data model was developed in the _____.

   A. 1960s
   B. 1970s
   C. 1980s
   D. 1990s

10. An internal _____ refers to a specific representation of an internal model, using the database constructs supported by the chosen database.

    A. Tuple
    B. Schema
    C. Object
    D. Value

11. A _____ is the primary key of one table that has been placed into another table to create a common attribute.

A. Superkey
B. Composite primary key
C. Candidate key
D. Foreign key

12. The _____ constraint can be placed on a column to ensure that every row in the table has a value for that column.

A. UNIQUE
B. NOT NULL
C. VALUE
D. EMPTY

13. A(n) _____ process is based on repetition of processes and procedures.

A. Participation
B. Cardinality
C. Relationship
D. Iterative

14. An atomic attribute _____.

A. cannot exist in a relational table
B. cannot be further subdivided
C. displays multiplicity
D. is always chosen to be a foreign key

15. For most business transactional databases, we should normalize relations into _____.

A. INF
B. 2NF
C. 3NF
D. 6NF

16. _____ is a term used to describe a comprehensive, cohesive, and integrated set of tools and processes used to capture, collect, integrate, store, and analyze data with the purpose of generating and presenting information used to support business decision making.

A. Business intelligence
B. Data manipulation
C. Data governance
D. Business Support System

17. In business intelligence framework, data are captured from a production system and placed in the _____ on a near real- time basis.

A. decision support system
B. portal
C. data warehouse
D. dashboard

18. Operational data are commonly stored in many tables, and the stored data represent information about a given _____ only.

A. transaction
B. database
C. table
D. concept

19. _____ can serve as a test vehicle for companies exploring the potential benefits of data warehouses.

A. Data networks
B. Data marts
C. Data cubes
D. OLAPs

20. A(n) _____ is a read-only database optimized for data analysis and query processing.

A. Data mining
B. Data analytics
C. Data modelling
D. Data warehouse

Section B (60 marks)

Instruction: Answer any **THREE** out of **FOUR** questions in the answer booklet provided.

Question 1

(a) Define DBMS and identify **FOUR (4)** functions of DBMS.

(10 marks)

(b) Define data model. List any **THREE (3)** the importance of data modeling.

(4 marks)

(c) What is data visualization? Identify any **TWO (2)** different techniques of data visualization.

(6 marks)

Question 2

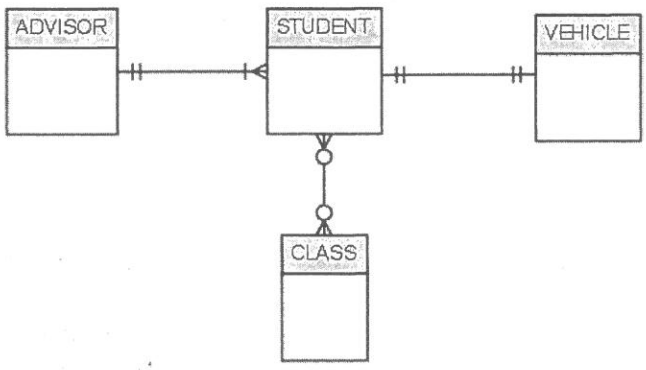
(a) Create an ERD based on the Crow's Foot model, using the following requirements:

- An INVOICE is written by a SALESREP. Each sales representative can write many invoices, but each invoice is written by a single sales representative.
- The INVOICE is written for a single CUSTOMER. However, each customer can have many invoices.
- An INVOICE can include many detail lines (LINE), each of which describes one product bought by the customer.
- The product information is stored in a PRODUCT entity.
- The product's vendor information is found in a VENDOR entity.

(12 marks)

(b) Define the term connectivity and list the business rules for the figure below:

(8 marks)



Question 3

(a) What is normalization? Provide any **TWO (2)** purposes of normalization.

(4 marks)

(b) The dependency diagram shown below indicates that authors are paid royalties for each book they write for a publisher. The amount of the royalty can vary by author, by book, and by edition of the book.

ISBN	BookTitle	**Author Num**	LastName	Publisher	Royalty	Edition

i) Draw the book royalty dependency diagram

(4 marks)

ii) Based on the dependency diagram, create a database whose tables in 2NF. showing the dependency diagram for each table.

(6 marks)

iii) Based on the dependency diagram, create a database whose tables in 3NF. showing the dependency diagram for each table.

(6 marks)

Question 4

(a) The table below is a subset of the EMPLOYEE table. (Note that the JOB_CODE is the FOREIGN KEY to JOB.)

ATTRIBUTE (FIELD) NAME	DATA DECLARATION
EMP_NUM	CHAR(3)
EMP_LNAME	VARCHAR(15)
EMP_FNAME	VARCHAR(15)
EMP_INITIAL	CHAR(1)
EMP_HIREDATE	DATE
JOB_CODE	CHAR(3)

Using appropriate format, write the SQL code that will create the table structure for a table named EMP_1.

i. SQL code that will create the table structure for a table named EMP_1.

(7 marks)

(b) Based on the EMP_1 below write the SQL code

EMP_NUM	EMP_LNAME	EMP_FNAME	EMP_INITIAL	EMP_HIREDATE	JOB_CODE
101	News	John	G	08-Nov-00	502
102	Senior	David	H	12-Jul-89	501
103	Arbough	June	E	01-Dec-96	500
104	Ramoras	Anne	K	15-Nov-87	501
105	Johnson	Alice	K	01-Feb-93	502
106	Smithfield	William		22-Jun-04	500
107	Alonzo	Maria	D	10-Oct-93	500
108	Washington	Ralph	B	22-Aug-91	501
109	Smith	Larry	W	18-Jul-97	501

i. Write the SQL code to enter the first two rows

(4 marks)

ii. Assuming the data shown in the EMP_1 table have been entered, write the SQL code that will list all attributes for a job code of 502.

(3 marks)

iii. Write the SQL code that will save the changes made to the EMP_1 table.

(1 marks)

iv. Write the SQL code to change the job code to 501 for the person whose employee number (EMP_NUM) is 107.

(3 marks)

v. After you have completed the task, examine the results, and then reset the job code to its original value.

(2 marks)

~ The End ~