



UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF INFORMATION TECHNOLOGY

FINAL EXAMINATION
JANUARY 2016 SEMESTER

COURSE CODE : ITD22403
COURSE NAME : DATABASE SYSTEM
PROGRAMME : DIPLOMA IN INFORMATION TECHNOLOGY
DIPLOMA IN MULTIMEDIA
DIPLOMA OF ENGINEERING TECHNOLOGY IN
COMPUTING
DATE : 18 MAY 2016
TIME : 9.00 am – 11.00 am
DURATION : (2 HOURS)

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper has information printed on both sides of the paper.
3. This question paper consists of TWO (2) sections. Section A and Section B.
4. Answer ALL questions in Section A and Section B.
5. Please write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English.

THERE ARE 10 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 25 marks)**MULTIPLE CHOICE QUESTIONS****INSTRUCTION: Answer ALL questions.****Please use the answer booklet given.**

1. Which of the following is NOT an advantage of database systems?
 - A. Redundant data
 - B. Program-data independence
 - C. Better data quality
 - D. Reduced program maintenance

2. All of the following are primary purposes of a database management system (DBMS) EXCEPT:
 - A. creating data
 - B. updating data
 - C. storing data
 - D. providing an integrated development environment.

3. Relational databases establish the relationships between entities by means of common fields included in a file called a(n) _____.
 - A. entity
 - B. relationship
 - C. relation
 - D. association

4. Program-data dependence is caused by:
 - A. file descriptors being stored in each application.
 - B. data descriptions being stored on a server.
 - C. data descriptions being written into programming code.
 - D. data cohabiting with programs.

5. Data that describe the properties of other data are:
- A. relationships.
 - B. logical.
 - C. physical.
 - D. none of the above.
6. A table is a matrix consisting of a series of row and column ____.
- A. links
 - B. models
 - C. system
 - D. intersections
7. A(n) ____ is a brief, precise, and unambiguous description of a policy, procedure, or principle within a specific organization.
- A. constraint
 - B. entity
 - C. attribute
 - D. business rule
8. Database models can be grouped into two categories: conceptual models and ____ models.
- A. implementation
 - B. logical
 - C. physical
 - D. query
9. What type of relationship is expressed with the phrase "Student takes Class"?
- A. 1:M
 - B. 1:1
 - C. M:1
 - D. M:N

- 10 A ____ is an organized collection of data for one or more purposes, usually in digital form.
- A. database model
 - B. database design
 - C. database
 - D. Database management system.
- 11 Which type of entity cannot exist in the database unless another type of entity also exists in the database, but does not require that the identifier of that other entity be included as part of its own identifier?
- A. Weak entity
 - B. Strong entity
 - C. ID-dependent entity
 - D. ID- independent entity
- 12 In a one-to-many relationship, the entity that is on the one side of the relationship is called a(n) _____ entity.
- A. parent
 - B. child
 - C. instance
 - D. subtype
- 13 All Entity Relationship diagrams must have one of each of the following:
- i. One or more entities
 - ii. Relationships between entities
 - iii. Arcs
 - iv. At least one supertype and subtype
- A. i. and ii.
 - B. i., ii. and iv.
 - C. ii and iv.
 - D. i. and iii.

- 14 In a business that sells pet food, choose the best relationship name between FOOD TYPE and ANIMAL (e.g. dog, horse, or cat)
- Each FOOD TYPE must be suitable for one or more ANIMALS
 - Each ANIMAL must be the seller of one or more FOOD TYPES
 - Each FOOD TYPE may be made from one or more ANIMALS
 - Each FOOD TYPE may be given to one or more ANIMALS
- A. i. and iii.
B. ii. and iii.
C. i. and iv
D. iii. and iv.
- 15 Which of the following entities most likely contains valid attributes?
- Entity: Home. Attributes: Number of Bedrooms, Owner, Address, Date Built
 - Entity: Pet. Attributes: Name, Birthdate, Owner
 - Entity: Car. Attributes: Owner Occupation, Owner Salary, Speed
 - Entity: Mother. Attributes: Name, Birthdate, Occupation, Start Date
- A. i. and iii.
B. i. and ii.
C. ii. and iii.
D. iii. and iv.
- 16 The SQL WHERE clause:
- A. Limits the column data that are returned.
B. Limits the row data are returned.
C. Both A and B are correct.
D. Neither A nor B are correct.
- 17 To remove duplicate rows from the results of an SQL SELECT statement, the _____ qualifier specified must be included.
- A. Only
B. Unique
C. Distinct
D. Single

- 18 Which one of the following sorts rows in SQL?
- A. Sort by
 - B. Group by
 - C. Order by
 - D. Align by
- 19 _____ is used to store definitions of the data elements and their relationships.
- A. Database
 - B. DBMS
 - C. Data dictionary
 - D. Table
- 20 Which of the following label is derived from the three-prolonged symbol used to represent the "many" side of the relationship?
- A. Crow's foot
 - B. Entity instance
 - C. Chen model
 - D. Connectivity
- 21 _____ is a SQL syntax used in data definition language.
- A. CREATE
 - B. INSERT
 - C. UPDATE
 - D. SELECT
- 22 _____ is used to enable the database administrator to define the schema components.
- A. Data Manipulation Language
 - B. Table
 - C. Database
 - D. Data Definition Language

- 23 ____ exists when different versions of the same data appear in different places.
- A. Data inconsistency
 - B. Better data integration
 - C. Data consistency
 - D. Improved decision making
- 24 A(n) ____ database is designed to support a company's day-to-day operations.
- A. desktop
 - B. enterprise
 - C. workgroup
 - D. transactional
- 25 ____ is the body of information and facts about a specific subject.
- A. Data
 - B. Knowledge
 - C. Information
 - D. Database

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SECTION B (Total: 75 marks)

INSTRUCTION: Answer ALL questions.

Please use the answer booklet given.

Question 1

a. For each of the situation, draw an entity-relationship diagram modeling the situation. On the diagram be sure to identify the cardinality of each relationship.

i. A novel is written by an author but an author may write many novels.

(2 marks)

ii. A staff of a company may marry to more than one staff of the same company.

(2 marks)

iii. An actor may star in more than one movie and a movie is starred by at least one actor.

(2 marks)

iv. A bill may have zero, one or many items and an item is found to be in one or many bills.

(2 marks)

b. Using a correct notation, draw Entity Relationship Diagram for Naluri Holding and write appropriate connectivities in the diagram. The following describe their business.

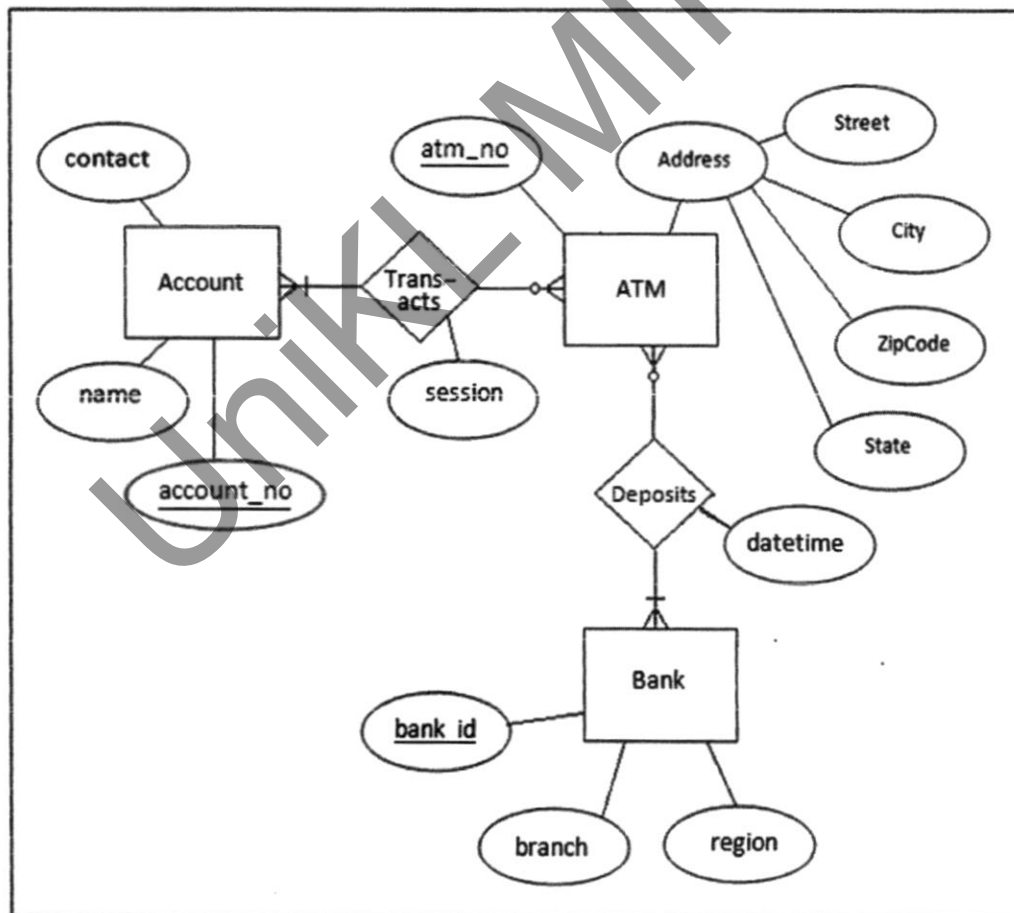
- Naluri Holding consists of several departments. Information such as DepartmentID, Department Name and its Address should be kept. Street, Postcode and State are compulsory component required for Address.
- Each department employs many employees, but each employee is employed by one department. Attributes of employee include EmployeeID, Employee Name and Date of Birth. Age attribute is also required, where it is calculated from Date of Birth.
- Some employees, known as "rovers," are not assigned to any department.
- Naluri Holding also divided into a few divisions. A division operates many departments, but each department is operated by one division. Information such as DivisionID, DivisionName and Location are necessary.

- An employee may be assigned to many tasks, and a tasks may have many employees assigned to it. TaskID, TaskName, TaskStartDate, TaskEndDate should be kept.
- A task must have at least one employee assigned to it.
- One of the employees knows as "Department manager" manages each department, and each department is managed by only one "Department manager".
- One of the employees known as "Deputy Director" runs each division, and each division is run by one "Deputy Director".

(17 marks)

Question 2

- a. Given the following Entity Relational Diagram, transform it into a set of correct Relational Schema. State clearly the primary key or foreign key found in each table.



(10 marks)

- b. Answer the following questions based on the given PRODUCTION relation:

PRODUCTION

Factory_ID	Factory_Description	Fruit_ID	Fruit_Description	Juice_Concentration	Cost_Per_Liter	Number_of_Liter
567	Rawang	FA	Apple	High	3	10000
567	Rawang	FA	Apple	Low	2	23000
567	Rawang	FO	Orange	Low	2	35000
568	Shah Alam	FO	Orange	High	3	42000
568	Shah Alam	FA	Apple	High	3	51000
568	Shah Alam	FO	Orange	Low	2	65000

- i. Draw the functional dependency diagram. Identify clearly all types of dependencies. (7 marks)
- ii. Normalize the PRODUCTION relation into a set of normalized relations in Third Normal Form in a form of relational schema. (8 marks)

Question 3

PRODUCT

ProductID	ProductCode	ProductName	ProductQuantity	ProductPrice	SupplierID
2001	PEC	Pencil HB	500	0.80	301
2002	PEC	Pencil 2B	200	1.10	305
2003	PEC	Pencil 5B	100	1.70	305
2004	PEC	Pencil 6B	500	2.50	302
2005	PEN	Pen Red	500	1.20	302
2006	PEN	Pen Blue	200	1.80	303
2007	PEN	Pen Black	100	1.80	301
2008	PEN	Pen Green	500	1.00	302

SUPPLIER

SupplierID	SupplierName	Phone
301	AlamMakmurSdnBhd	0365656567
302	Ideal Store SdnBhd	0332323234
303	Indah NiagaSdnBhd	093234567
304	Maju Jaya SdnBhd	076565456
305	Salam SyukurSdnBhd	061212323

- Use CREATE TABLE command to write the table definition for Product table. Please use appropriate data type and size.
(5 marks)
- List the product's code, name, quantity and price which has the price below than RM1.50.
(3 marks)
- Write a SQL statement to update the product price for ProductID 2008 from RM1.00 to RM 1.80
(2 marks)
- List down all attributes from Product to get the Price for Pencil from the lowest price to the highest price.
(4 marks)
- List ProductName, ProductPrice, and SupplierName where the product price is below than Rm1.50
(6 marks)
- Update the "Pen Green" price from RM1.00 to RM1.80 and add the quantity by 50.
(5 marks)

END OF EXAMINATION PAPER