INTI INTERNATIONAL UNIVERSITY

FOUNDATION IN BUSINESS INFORMATION TECHNOLOGY (CFPI)
CSC1213: INTRODUCTION TO DATABASE MANAGEMENT SYSTEM
FINAL EXAMINATION: AUGUST 2015 SESSION

Section A

Instructions: This section consists of **TWENTY FIVE (25)** questions. Answer **ALL** questions in the OMR sheet provided. All questions carry equal marks.

1) A strong entity depends on _____.
   (A) Data dictionary
   (B) Attribute
   (C) Weak entity
   (D) Foreign key
   (E) None of the above

2) Data modeling is an important part of system development because _____.
   (A) Data design influences the design of programs and other system components
   (B) Data is less stable than processes
   (C) Changes are easier and cheaper to make once more development is completed
   (D) Data is generally less complex than processes
   (E) None of the above

3) Disadvantage of database processing system includes _____.
   (A) Viewing data as a corporate resource
   (B) Cost
   (C) Program-data dependence
   (D) Program-data independence
   (E) Data redundancy

4) The general (or generic) mother to child relationship would be an example of what cardinality?
   (A) 1:1
   (B) M:M
   (C) M:1
   (D) 1:M
   (E) 1:2

5) Which of the following is not a Microsoft Access object _____.
   (A) Reports
   (B) Forms
   (C) Query
   (D) Mail merge
   (E) Table

6) Deadlock occurs when _____.
   (A) The state of a lock in the DBMS changes from live to dead
   (B) A transaction cannot decide what to do next
   (C) The user requests a cascade abort
   (D) When transactions are competing for the same resource
   (E) The DBMS cannot decide what to do next

7) A relationship between entities of the same class is called _____.
   (A) Has relationship
   (B) Has been relationship
   (C) Ternary relationship
   (D) Crow feet relationship
   (E) Recursive relationship

8) Which of the following statement is true?
   (A) A database must contain two or more data tables
   (B) A database must contain at least one data table
   (C) A database must contain only two tables
   (D) A database must contain only one table
   (E) A database must contain 60 data tables or more

9) An Enterprise Resource Planning application is an example of a (n) _____.
   (A) Single-user database application
   (B) Multiuser database application
   (C) Data warehouse application
   (D) Authentication database application
   (E) E-commerce database application

10) Which type of entity cannot exist in the database unless another type of entity also exist in the database
   (A) Strong entity
   (B) Weak attributes
   (C) Multi value
   (D) Weak entity
   (E) Dependent entity

11) In a relational database, two records are linked by _____.
   (A) Cell address
   (B) Inter record gaps
   (C) Bridge
   (D) Key field
   (E) TCP/IP

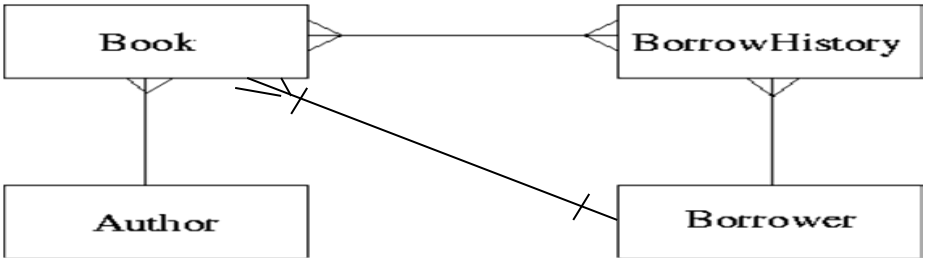
12) In a database, another name for Locate or Display is _____.
(A) Sort
(B) Criteria
(C) Query
(D) Search and destroy
(E) Loc

13) Which of the following is an incorrect statement about view?
(A) View is derived from other tables.
(B) View can be updated like a table
(C) Drop View is used to dispose it
(D) View is one method to secure database
(E) All are correct statements

14) Foreign keys in table will create_____.
(A) Query
(B) Lookup
(C) Table
(D) Null
(E) Relationship

15) Which of the following statements are correct?
i. An entity is an object to the real world.
ii. Entity is described using attributes.
iii. Attributes are described using entity.
iv. Each attribute must identify a domain.
v. We can have more than 1 candidate key.
(A) i , iii,v
(B) ii ,iv
(C) i , iii ,iv
(D) i,ii,iv,v
(E) iv,v

16) **ER Scenario**
Books in the library can be borrowed by a borrower, and a complete history of all the books a borrower has borrowed is held in the Borrow History entity set. All books must have an author.



Considering the information in ER Scenario, which of the following statement is **TRUE**?
(A) A borrower can only borrow the same book once.
(B) A book can only have a single author.
(C) A borrower must borrow multiple books.
(D) A book can only be borrowed once.
(E) Many-to-many relationships should never appear in an ER diagram.

17) Transactions are described as supporting the ACID model. What does the "C" stand for in ACID?
(A) Concurrency control
(B) Correctness
(C) Consistency
(D) Completeness
(E) Computation

18) Which of the following situation, which will not result in a ROLL BACK.
(A) The machine on which the DBMS was executing failed suddenly.
(B) A cascade abort is required.
(C) A transaction is aborted.
(D) The DBMS application was corrupted by a power spike.
(E) A committed transaction needs to be undone.

19) Aborting a transaction _____.
(A) Removes changes made in a transaction after it has committed.
(B) Results in deadlock.
(C) Removes changes made so far in the current transaction.
(D) Is only possible in Microsoft Access.
(E) Deletes the database for security reasons.

20) Select the **TRUE** statement.
(A) For referential integrity, each foreign key should be null or equal to a primary key in another table.
(B) For entity integrity, all foreign keys should be null.
(C) For referential integrity, all primary keys should not be null.
(D) For entity integrity, all primary keys should be null or unique.
(E) For referential integrity, all foreign keys should match a primary key in another table.

21) In a DBMS without concurrency control, what consistency problem does the following transaction schedule depict?

Time	Transaction A	Transaction B
t1	read R	
t2		read R
t3	write R	
t4		write R

(A) Lost Update
(B) Deadlock
(C) Inconsistent Analysis
(D) Uncommitted Dependency
(E) Dirty Read

22) Which of the following is part of the ANSI/SPARC three level architecture models?
(A) Contactable
(B) Client
(C) Conceptual
(D) Contextual
(E) Coaxial

Question 23 and 24 are based on the following tables .

Job Table		
Ref_id	**employer**	**salary**
J01	Napier	£20000
J02	GCHQ	£22000
J03	Napier	£24000

Requirement	
Ref_Id	**skill**
J01	Unix Admin
J01	Oracle Admin
J02	Unix Admin
J02	Number Theory

The table requirement was created, using Referenced as a foreign key value.

23) Select the **TRUE** statement concerning the '**Requirement"** table.

(A) It must be created BEFORE the job table
(B) The value 'Windows 2000 Admin' is NOT permitted for the skill attribute
(C) Referential integrity checks will prevent invalid values for job
(D) It cannot store a field with a NULL value for job
(E) Referential integrity checks will prevent identical rows being inserted

24) Select the term which best describes the cardinality of the relationship between the table job to the table requirement.

(A) One to one
(B) Some to many
(C) Many to one
(D) Many to many
(E) One to many

25) Relational system with forth generation query languages

(A) are outdated today.
(B) permit employees who are not computer specialists to access large database.
(C) require extensive employee training before they can be accessed.
(D) are not useful to Internet companies.
(E) are not yet available to meet most businesses.

Section B

Instructions: This section consists of **THREE (3)** questions. Answer any **TWO (2)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

(a) Briefly explain the following database terms :-
(i) Distributed database
(ii) Relationship Cardinalities
(iii) Query
(iv) Database transaction
(v) SQL

(5 marks)

(b) List and explain database transaction properties.

(10 marks)

(c) Define the **TWO (2)** principles integrity rules for the relational model. Describe why it is desirable to enforce these rules.

(6 marks)

(d) Distinct any **TWO (2**) roles of Data administrator and Database administrator.

(4 marks)

Question 2

(a) Differentiate the term 'Database' from 'Database Management System'.

(4marks)

(b) Data administration uses several facilities provided by data management software to secure your database. Name any **FOUR (4)** database security facilities available.

(4 marks)

(c) Name ONE (1) popular database management system.

(1 mark)

(d) The transaction management in database, consist of **concurrency management** and **recovery management** .Briefly explain these two services.

(4 marks)

(e) The management of a large retail store would like a database to keep track of sales activities. The requirements analysis for this database led to the following six entities: Customer, Job, Order, Salesperson, Department and Item.

The following assertions describe the data relationships:

- Each customer has one job-title, but different customers may have the same job-title.
- Each customer may place many orders, but only one customer may place a particular order.
- Each department has many salespeople, but each salesperson must work in only one department.
- Each department has many items for sale, but each item is sold in only one department. (Item means item type, like IBM PC).
- For each order, items ordered in different departments must involve different salespeople, but all items ordered within one department must be handled by exactly one salesperson. In other words, for each order, each item has exactly one salesperson; and for each order, each department has exactly one salesperson.

(12 marks)

Question 3

(a) List **TWO (2)** reasons for using a view in database environment.

(4 marks)

(b) Explain **FOUR (4)** approaches that can be used to recover from system failures.

(12 marks)

(c) List **FIVE (5)** advantages of database approach.

(5 marks)

(d) Name any **FOUR (4)** common data types use in Microsoft Access.

(4 marks)

SECTION C
Instructions: This section consists of **ONE (1)** question. Answer this questions in the answer booklet provided.

Question 1.

(a) Explain the following:
(i) Shared lock
(ii) Exclusive lock
(iii) Dead lock

(6 marks)

(b) List and describe three types of schema found in a three level architecture database.

(6 marks)

(c) Briefly describe the following database terminologies :
(i) Relation
(ii) Attribute
(iii) Tuple
(iv) Relational database

(4 marks)

(d) List **FIVE (5)** phases of the database development process.

(5 marks)

(e) Explain the need for concurrency control. State **THREE (3)** concurrency problems.

(4 marks)

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