مفاهيم قواعد البيانات
12:2
الاحد 6/6/2021
أ.د/تيسير حسن

Faculty of Computers & Information, Assiut University
2nd Level
Final Exam
Duration: 2 hours

1. الإسم الرباعي (بالعربي فقط) *

مصطفي اسامة احمد احمد

2. رقم الجلوس *

162019153

3. المستوي *

- [ ] الاول
- [x] الثاني
- [ ] الثالث

- رابعة 2013
- رابعة 2014
- رابعة 2015
- رابعة 2016
- رابعة 2017

4. البرنامج *

- عام
- بايو
- هندسة

5. رقم المعمل *

- ج•
- د•
- اب
- اد
- اهـ
- أ٢
- ب٢
- ج٢
- د٢
- هـ٢
- أ٣
- ب٣

- ٣ج
- ٣د
- ٣هـ
- ٤أ
- ٤ب

6. رقم الكمبيوتر *

1

7. الكود (قد تمت مراجعة بيانات الطالب ورقم الجلوس) *

xqExaZ

8. An entity type defines:
(2 Points)

- a. an object
- b. a collection (or set) of entities that have the same attributes
- c. a person
- d. Incentives of a person

9. Database Storage organization utility:
(2 Points)

- a. reorganizes a set of database files into different file organizations
- b. monitors time to perform a query

- c. provides user accounts
- d. provides access to metadata

10. The metadata is:
(2 Points)

- a. The Enhanced Entity Relationship Model
- b. ensuring data privileges
- c. the descriptions of the schema constructs and constraints
- d. Database backup and recovery

11. Suppose you have the following schema, answer using SQL:
Orders(Order_no, purchase_amt, order_date, customer_id, salesman_id)
Customer(customer_id, fname, last_name, apartment, city)
Salesman(Salesman_id, Sales_fname, Sales_lname, phone_number)
Find the highest purchase amount ordered by the each customer on a particular date with their ID, order date and highest purchase amount.
a. Answer 1: SELECT customer_id, ord_date, MAX(purch_amt)
FROM Customers
GROUP BY customer_id, ord_date;
b. Answer 2: SELECT MAX(purch_amt)
FROM orders
GROUP BY customer_id, ord_date;
c. Answer 3: SELECT customer_id, ord_date, MAX(purch_amt)
FROM orders
GROUP BY customer_id, ord_date;
(2 Points)

- a. Answer 1
- b. Answer 2
- c. Answer 3

12. A database schema is:
(2 Points)

- a. Inserting data into the database
- b. A description of a database
- c. The current occurrence of an instance
- d. The entity relationship diagram

13. Given the following schema, the correct answer for SQL is:
Emp_details(EMPID_NO, EMP_Fname, EMP_Fname, EMP_dept)
Find the number of employees in each department along with the department code

a. Answer 1: SELECT emp_dept, COUNT(*)
FROM emp_details
GROUP BY emp_dept;

b. Answer b: SELECT, COUNT(*)
FROM emp_details
GROUP BY emp_dept;

c. Answer c: SELECT emp_dept
FROM emp_details
GROUP BY emp_dept;

(2 Points)

- a. Answer 1
- b. Answer 2
- c. Answer 3

14. Consider the following relations, answer using SQL:
Student (ssn, name, address, major) pk is ssn
Course (code, title) pk is code
Registered (ssn, code) pks are ssn and code
List of courses in which all students are registered:
a. Answer1: Select code from course C where exists(select ssn from Students);
b. Answer2: Select code from course C where not exists(select ssn from Students);
c. Answer3: Select code from course C where not exists(select ssn from Students except select ssn from Registered R where R.code=C.course);
(2 Points)

- a. Answer 1
- b. Answer 2
- c. Answer 3

15. Consider the following relations, answer the question using SQL:
Student (ssn, name, address, major) ... PK is ssn
Course (code, title) PK is code
Registered (ssn, code) PKs are ssn and code
List SSNs of students who are registered for both 'Database Systems' and 'Analysis of Algorithms'
a. Answer 1: Select ssn from Course C, Registered R
where C.code = R.code and title='DB' Intersect Select ssn
from Course C, Registered R
where C.code = R.code and title='Alg'
b. Answer 2: Select ssn from Course C, Registered R where C.code = R.code and title='DB' title='Alg'
c. Answer 3: Select ssn from Course C, Registered R
(2 Points)

- a: Answer 1
- b: Answer 2
- c: Answer 3

16. Total specialization constraint specifies that :
(2 Points)

- a. Every entity in the superclass must be a member of at least one subclass in the specialization.
- b. Every entity in the superclass must be a member of at least one subclass in the generalization.
- c. A specialization
- d. Entity is created

17. If a field in a table is optional, it is possible to insert a new record or update a record without adding a value to this field
(2 Points)

- a. True
- b. False

18. Lines links attributes to entity types and entity types with other relationship types
(2 Points)

- a. True
- b. False

19. A primary key is defined as:
(2 Points)

- a. A Unique identifier for a specific table
- b. An identifier that is frequently repeated
- c. A foreign key
- d. A complex key

20. A foreign key is:
(2 Points)

- a. A primary key in another table
- b. A primary key in the current table
- c. A complex key
- d. An integer

21. The following SQL statement searches:
SELECT LASTNAME
FROM Employees
WHERE LastName LIKE '%en%
(2 Points)

- a. For all last names that have the letters “en”
- b. For all last names that end with the letters “inger”
- c. For all last names that begin with the letters
- d. None of the above

22. Referential integrity constraint refers to:
(2 Points)

- a. the degree of a relation
- b. the relational schema
- c. null values
- d. used to maintain the consistency among tuples in the two relations

23. Advantages of DBMS include:
(2 Points)

- a. Providing backup and recovery
- b. Database administrators
- c. End users
- d. Casual users

24. Condition-defined subclasses are:
(2 Points)

- a. valid in some cases
- b. a case of entity relationship diagram
- c. defining new types of relations
- d. Entities that will become members of each subclass can be defined

25. In an ERD, the following statement is TRUE:
(2 Points)

- a. The name of the attribute can be the same name as the entity.
- b. The name of the attribute Cannot be the same name as an entity
- c. One can specialize an entity
- d. One can use inheritance

26. An example of a multi-valued attribute is:
(2 Points)

- a. Colors of a car

b. Age

c. Gender

d. Salary

27. The specialization process allows to:
(2 Points)

a. Perform a disjoint and total participation

b. Create a superclass

c. Generalize more entities

d. Establish additional specific attributes with each subclass

28. primary key can have single column
(2 Points)

a. True

b. False

29. A High-level conceptual data model provides:
(2 Points)

a. physical tables

b. concepts that are close to the way many users perceive data

c. data security

d. details of data storage

30. IN is a logical operator in SQL that allows you to specify a list of values that you'd like to include in the results.
(2 Points)

- (●) a. True
- ( ) b. False

31. A data Model is:
(2 Points)

- (●) a. A collection of concepts that can be used to describe the structure of a database
- ( ) b. The dynamic aspect of a database application
- ( ) c. A valid user-defined operation
- ( ) d. Data manipulation

32. A database repository is:
(2 Points)

- ( ) a. A foreign key
- ( ) b. A primary key
- ( ) c. ERD
- (●) d. A centralized storehouse of metadata

33. The following statement(s) are true about ERD:
(2 Points)

- ( ) a. ER model allows you to draw Database Design
- ( ) b. It is an easy to use graphical tool for modeling data
- ( ) c. It is a GUI representation of the logical structure of a Database

d. All of the above

34. Components of the database environment include:
(2 Points)

a. DBMS and user interface

b. Database size

c. Image data

d. Audio data

35. An example of a composite attribute is:
(2 Points)

a. Incentive

b. Date of birth

c. Address

d. Color of a mobile

36. In an EER, the following statement is TRUE:
(2 Points)

a. Only overlap and total participation not partial participation.

b. We can have overlap and both total and partial participation

c. We cannot have specialization of entities

d. We cannot generalize sub-entities if they have common attributes

37. A DBMS performs :
(2 Points)

- a. Data quality
- b. Data Sharing and data manipulation
- c. Data entry
- d. Data integration

38. Data models include:
(2 Points)

- a. SQL model
- b. Primary key
- c. Network model
- d. Foreign key

39. Ellipses symbol represent multi-valued attributes
(2 Points)

- a. True
- b. False

40. Diamonds symbol represents relationship types
(2 Points)

- a. True
- b. False

41. In the Update statement, referential integrity should be enforced
(2 Points)

- a. True

b. False

42. Degree of a relation is:
(2 Points)

a. the number of attributes n of its relation schema.

b. a number

c. the number of relations

d. State of a relation

43. An example of a derived attribute is:
(2 Points)

a. Date of retirement

b. Age

c. Gender

d. None of the above

44. Specialization is:
(2 Points)

a. defining a superclass

b. the process of defining a set of subclasses of an entity type

c. defining relationships

d. defining cardinalities

45. A one-to-many relationship means:
(2 Points)

a. Many instances in one table are related to many instances in another table

b. One instance in one table is related to one instance in another table

c. One instance in one table is related to many instances in another table

d. All of the above

46. 41. Rectangles in ERD represents:
(2 Points)

a. Entity types

b. Relationships

c. Type of relationships

d. External entities

47. Disadvantages of Hierarchical model includes:
(2 Points)

a. Database is visualized as a linear arrangement of records

b. Navigational and procedural nature of processing

c. Database contains a complex array of pointers that thread through a set of records.

d. Little scope for automated "query optimization"

48. Suppose you have the following schema, answer using SQL:
Orders(Order_no, purchase_amt, order_date, customer_id, salesman_id)
Customer(customer_id, fname, last_name, apartment, city)
Salesman(Salesman_id, Sales_fname, Sales_lname, phone_number)
Write a SQL statement to find the highest purchase amount with their ID and order date, for only those customers who have a higher purchase amount in a day is within the list 2000, 3000, 5760 and 6000.
a. Answer 1: SELECT customer_id,ord_date,MAX(purch_amt)
FROM orders
GROUP BY customer_id, ord_date
HAVING MAX(purch_amt) IN(2000 ,3000,5760, 6000);
b. Answer 2: SELECT customer_id,ord_date,MAX(purch_amt)
FROM orders
HAVING MAX(purch_amt) IN(2000 ,3000,5760, 6000);
c. Answer3: SELECT customer_id,ord_date
FROM orders
GROUP BY customer_id, ord_date
HAVING MAX(purch_amt) IN(2000 ,3000,5760, 6000);
(2 Points)

- a. Answer 1
- b. Answer 2
- c. Answer 3

49. Inserting an entity in a superclass implies that the entity is:
(2 Points)

- a. mandatorily inserted in all predicate-defined subclasses
- b. optionally inserted in all predicate-defined subclasses
- c. mandatorily deleted
- d. defines predicates

50. Degree of a relationship type is:
(2 Points)

- a. the number of entity types in ERD
- b. the number of participating entity types
- c. the number of attributes in an entity
- d. the primary key

51. Consider the following schema:
Treatment (disease, medication)
Doctor (name, disease-of-specialization)
Treated (doctor_name, patient_name, date, procedure, diagnostic)
Give the name of doctors who don't suffer from any disease.
a. Answer 1: a. SELECT distinct d.name
FROM DOCTOR d
WHERE NOT EXISTS
(Select *
FROM treated t
WHERE d.name =t.patient_name);
b. Answer 2: SELECT d.name
FROM DOCTOR d
WHERE NOT EXISTS
(Select *
FROM treated t
WHERE d.name =t.patient_name);
c. Answer 3: SELECT distinct d.name
FROM DOCTOR d
(2 Points)

- a. Answer 1
- b. Answer 2
- c. Answer 3

52. BETWEEN is a logical operator in SQL that allows you to select only columns that are within a specific range.
(2 Points)

- a. True

b. False

53. Consider the following relations, answer using SQL:
Student (ssn, name, address, major) pk is ssn
Course (code, title) pk is code
Registered (ssn, code) pks are ssn. code
List of courses in which all 'ECMP' major students are registered:
a. Answer 1: Select code from course
b. Answer 2: Select code from course C where not exists
(select ssn from Students where major= 'ECMP')
c. Answer 3: Select code from course C where not exists(select ssn from Students where major= 'ECMP' except select ssn from Registered R where R.code=C.course);
(2 Points)

a. Answer 1

b. Answer 2

c. Answer 3

54. Double Ellipses represent multi-valued attributes
(2 Points)

a. True

b. False

55. The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables.
(2 Points)

a. True

b. False

56. The LIKE keyword in SQL statement selects rows containing fields that match specified portions of character strings
(2 Points)

- (●) a. True
- ( ) b. False

57. Primary key attributes are not necessarily underlined
(2 Points)

- ( ) a. True
- (●) b. False