

القسم: الحاسب الالى أسئلة الامتحان النهائي لمادة : إدارة قواعد البيانات

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رمز المادة: CS424

لطلبة الفصل: السابع

الزمن: ساعتان

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رقم القيد

اسم الطالب :

Write your name on Questions and answers paper

Q1 : Choose the right answers: (10 Marks)

1. Semi structured data is simply any information that uses a self-describing schema such as XML or JSON
 - A. True
 - B. False
2. A distributed database can use which of the following strategies?
 - A. Totally centralized at one location and accessed by many sites
 - B. Partially or totally replicated across sites
 - C. Partitioned into segments at different sites
 - D. All of the above
3. Language Bindings are
 - A. Object manipulation language
 - B. Mechanisms to invoke OQL from language
 - C. Procedures for operation on databases and transactions
 - D. All of above
4. The load and index is which of the following?
 - A. A process to reject data from the data warehouse and to create the necessary indexes
 - B. A process to load the data in the data warehouse and to create the necessary indexes
 - C. A process to upgrade the quality of data after it is moved into a data warehouse
 - D. A process to upgrade the quality of data before it is moved into a data warehouse
5. 'Spatial databases' are also known as
 - A. Geodatabases
 - B. Monodatabases
 - C. Concurrent databases
 - D. None of the above



رقم القيد

اسم الطالب:

6. Cluster is

- A. Group of similar objects that differ significantly from other objects
- B. Operations on a database to transform or simplify data in order to prepare it for a machine-learning algorithm
- C. Symbolic representation of facts or ideas from which information can potentially be extracted
- D. None of the above

7. Which statement is true about web server?

- A. A web server is a standard interface between Common Gateway Interface (CGI) and application server
- B. A Web server can serve as a front end to a variety of information services.
- C. The application server is working in conjunction with the web server, where application server displays and the web server interact.
- D. All of the above

8. The main purpose for structure mining is to extract previously unknown relationships between:

- A. Web contents
- B. Web data
- C. Web pages
- D. Web hyperlinks

9. _____ describes a distribution model in which applications are hosted by a service provider and made available to user

- A. Cloud service
- B. PaaS
- C. IaaS
- D. SaaS

10. A snowflake schema is which of the following types of tables?

- A. Fact
- B. Dimension
- C. Helper
- D. All of the above



Q2 : Answer five of the following (Just five): what are the differences between? (10 Marks)

1. Persistent objects & transient objects in OODB
2. HTML & XML file
3. OODB & ORDB
4. Homogeneous & Heterogeneous
5. ROLAP & MOLAP
6. SDBMS & GIS
7. Predictive & Descriptive
8. Hard Clustering & Soft Clustering

**Q3 : Distributed Database (5 Marks)**

A. What is horizontal and vertical fragmentation? What are the types of horizontal fragmentation.

Perform horizontal Fragmentation for student relation with course as given below.

Students (StudentNo , Student_Name, Date_of_Birth)

Course (CourseNo , Course_Name, Number_of_hours)

B. Explain the reason for viewing Distribution, Heterogeneity and Autonomy as orthogonal concepts on separate axes in a diagram.

C. Explain at least two differences between how transactions are handled in a distributed database vs. a centralized database.

Q4: Spatial Database (5 Marks)

A. What is SDBMS and is it possible to save spatial data in conventional (relational database)? Explain why we need SDBMS to sort and manage spatial data?

B. Spatial database built on other type of database management system which one?

C. What is Rtree and PR Quadtree, why we need them and which one is better? Explain

Q5 : XML Database (5 Marks)

A. What is parser in XML used for? And what are the common APIs for XML parsers?

B. Write an XML document which match the following XSD schema

```
<xs:element name="shipto">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="name" type="xs:string"/>
      <xs:element name="address" type="xs:string"/>
      <xs:element name="city" type="xs:string"/>
      <xs:element name="country" type="xs:string"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
```

C. Write an XPath expression that returns root element



Q6: Multimedia Database (5 Marks)

A. Creation of a 2-D Tree:

Consider following points in a 2-D plane:

(3, 6), (17, 15), (13, 15), (6, 12), (9, 1), (2, 7), (10, 19)

B. Delete point (2,7) ,(10,19)

C. What is the result of the following query, explain

```
SELECT M
FROM smds source1 M
WHERE (FindType(M)=Video OR FindType(M)=Image)
AND
M IN FindObjWithFeature(Mobile Gray)
AND
M IN FindObjWithFeature(Woman, Shoe, black)
```

Good Luck 😊