


Course No TEC 2311 +SWE 5428.
 Course Title: Advanced Database.
 Instructor Name: Mr. Eyad Almassri.
 Date: 26/03/ 2011.
 No. of Questions: Four.
 Time: 90 Minutes

University of Palestine

 Midterm Exam
 2nd quadsemester 2010/2011
 Total Grade: 100

Student No.: _____
 Student Name: _____
 College Name: _____
 Dep. / Specialist: _____

Answer all Questions

First Question :

(12/100)


(Choice Best answer):

1 - Database management Systems is		2- Not Database user	
A	A set of related data	A	DBA
B	The DBMS software together with the data itself	B	Database Designer
C	software package/ system to facilitate the creation and maintenance of DB	C	End Users
D	Non of above	D	Non of above

3 – Limitations of DTDs		4- One of Standard XML querying/translation languages:	
A	All values are strings	A	SQL Query
B	Difficult to specify unordered sets of subelements	B	SSL
C	IDs and IDREFs are untyped	C	XQuery
D	All of above	D	Non of above

5- XQuery is		6 –Additional DataTypes in SQL2 and SQL-99	
A	address (select) parts of documents	A	TIMESTAMP
B	general purpose query language for XML	B	Integer
C	stylesheet stores formatting options for a document	C	String
D	Non of above	D	DateTime

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(30 /100)

Second Question :

(Consider the following relations for a database that keeps track of patient information in hospital called General Hospital.)

Patients (SSNo, LastName, FirstName, HomePhone, Sex, DateofBirth, City)

Doctors (DNo, LastName, FirstName, OfficePhone, Specialty)

Examines (SSNo, DNo, Date, Time, Diagnosis --التشخيص)

Beds (RoomNumber, BedNumber, Type, Status, PricePerHour)

Bed_assigned (SSNo, RoomNumber, BedNumber, DateTimeIn, DateTimeOut, Amount)

Accounts (DateIn, DateOut, Amount)

has_account (SSNo, DateIn)

Draw a relational schema diagram specifying the foreign keys for this schema:

1-Draw an entity-relationship diagram.


2-Draw a relational schema diagram specifying the foreign keys for this schema

Answer:

1)

2)

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Third question :

(28/100)

Given the following DTD:

```
<!DOCTYPE bibliography -- قائمة مراجع [
<!ELEMENT Book (title, authorBook+, year, publisher, place)*>
<!ELEMENT title ( #PCDATA )>
<!ELEMENT authorBook ( last-name, first-name)+ >
<!ELEMENT last-name ( #PCDATA )>
<!ELEMENT first-name ( #PCDATA )>
<!ELEMENT year ( #PCDATA )>
<!ELEMENT publisher ( #PCDATA )>
<!ELEMENT place ( #PCDATA )>
<!ELEMENT Article -- مقالة (title, authorArticle+, journal, year, pages)*>
<!ELEMENT title ( #PCDATA )>
<!ELEMENT authorArticle ( last-name, first-name)+ >
<!ELEMENT last-name ( #PCDATA )>
<!ELEMENT first-name ( #PCDATA )>
<!ELEMENT journal ( #PCDATA )>
<!ELEMENT year ( #PCDATA )>
<!ELEMENT pages ( #PCDATA )>
]>
```

- 1- Give a small XML data according the above DTD.
- 2- Write Query in Xpath Query on the bibliography DTD fragment above, to do the following:
 - A. Selects all place from all the book node where publisher >2010.
 - B. Selects all the title from Book nodes.
 - C. Selects journal of the first Article node.
- 3- Write Query in Xquery on the bibliography DTD fragment above, to do the following:
 - A. Selects articles sorted by year.
 - B. Selects all books with more than one author.
 - C. Find all authors who have authored a book and an article in the same year .

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Answer:

1)

2)

3)

Fourth Question :

30/100)

Depend on this Graph answer all question:

EMPLOYEE	FNAME	MINIT	LNAME	SSN	BDATE	ADDRESS	SEX	SALARY	SUPERSSN	DNO
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DEPARTMENT			
DNAME	DNUMBER	MGRSSN	MGRSTARTDATE

DEPT_LOCATIONS	
DNUMBER	DLOCATION

PROJECT			
PNAME	PNUMBER	PLOCATION	DNUM

WORKS_ON		
ESSN	PNO	HOURS

DEPENDENT															
EMPLOYEE	ESSN	DEPENDENT_NAME	SEX	BDATE	RELATIONSHIP	FNAME	MINIT	LNAME	SSN	BDATE	ADDRESS	SEX	SALARY	SUPERSSN	DNO
John	B	Smith	F	1965-01-09	DAUGHTER	John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	M	1955-12-08	SON	Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Alice	J	Zelays	F	1968-07-19	SPOUSE	Alice	J	Zelays	999887777	1968-07-19	3321 Castle, Spring, TX	F	25000	987654321	4
Jennifer	S	Wallace	F	1941-06-20	SPOUSE	Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ramesh	K	Narayan	M	1962-09-15	SON	Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	F	1972-07-31	DAUGHTER	Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ahmad	V	Jabbar	M	1969-03-29	SON	Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
James	E	Borg	M	1937-11-10	SPOUSE	James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	null	1


DEPARTMENT				DNUMBER	DLOCATION
DNAME	DNUMBER	MGRSSN	MGRSTARTDATE	1	Houston
Research	5	333445555	1988-05-22	4	Stafford
Administration	4	987654321	1995-01-01	5	Bellaire
Headquarters	1	888665555	1981-06-19	5	Sugarland
				5	Houston

WORKS_ON	ESSN	PNO	HOURS
	123456789	1	32.5
	123456789	2	7.5
	666884444	3	40.0
	453453453	1	20.0
	453453453	2	20.0
	333445555	2	10.0
	333445555	3	10.0
	333445555	10	10.0
	333445555	20	10.0
	999887777	30	30.0
	999887777	10	10.0
	987987987	10	35.0
	987987987	30	5.0
	987654321	30	20.0
	987654321	20	15.0
	888665555	20	null

PROJECT	PNAME	PNUMBER	PLOCATION	DNUM
	ProductX	1	Bellaire	5
	ProductY	2	Sugarland	5
	ProductZ	3	Houston	5
	Computerization	10	Stafford	4
	Reorganization	20	Houston	1
	Newbenefits	30	Stafford	4

DEPENDENT	ESSN	DEPENDENT_NAME	SEX	BDATE	RELATIONSHIP
	333445555	Alice	F	1986-04-05	DAUGHTER
	333445555	Theodore	M	1983-10-25	SON
	333445555	Joy	F	1958-05-03	SPOUSE
	987654321	Abner	M	1942-02-28	SPOUSE
	123456789	Michael	M	1988-01-04	SON
	123456789	Alice	F	1988-12-30	DAUGHTER
	123456789	Elizabeth	F	1967-05-05	SPOUSE

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1- Write (SQL Query) For each employee, retrieve the employee's name, and the name of his or her immediate supervisor:

Answer:

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.....
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.....

2- Write (SQL Query) to Retrieve the name and address of all employees who work for the 'Research' department:

Answer:

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3- Write (SQL Query) to Retrieve the names of employees who have no dependents:

Answer:

.....
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4- Write (SQL Query) to Retrieve the names of all employees who do not have supervisors:

Answer:


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5- Write (SQL Query) to Find the maximum salary, the minimum salary, and the average salary among all employees:

Answer:

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.....

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6- Write (SQL Query) For each project, retrieve the project number, project name, and the number of employees who work on that project:

Answer:

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7- Write (SQL Query) For each project on which more than two employees work, retrieve the project number, project name, and the number of employees who work on that project.

Answer:

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.....

Fifth Question :

(10/100)

(Optional Question - Bonus):

1- SQL specifies two different syntactical ways to express joins:

A.

B.

2- List the advantages of using XML?

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End of Questions
Good Luck