1. Consider the following relational schemes for a library database:

Book (Title, Author, Catalog\_no, Publisher, YEAR, Price)

Collection (Title, Author, Catalog\_no)

WITH the following functional dependencies:

I. Title Author -> Catalog\_no

II. Catalog\_no -> Title Author Publisher YEAR

III. Publisher Title YEAR -> Price

Assume {Author, Title} is the key for both schemes. Which of the following statements is true?  
a) Both Book and Collection are in BCNF  
b) Both Book and Collection are in 3NF only  
c) Book is in 2NF and Collection is in 3NF  
d) Both Book and Collection are in 2NF only

Answer: c  
Explanation: The relation Collection is in BCNF: Its given that {Author, Title} is the key and there is only one functional dependency (FD) applicable to the relation Collection {i.e. Title Author –> Catalog\_no}.

2. Let R(A,B,C,D,E,P,G) be a relational schema in which the following FDs are known to hold:

AB->CD

DE->P

C->E

P->C

B->G

The relation schema R is  
a) in BCNF  
b) in 3NF, but not in BCNF  
c) in 2NF, but not in 3NF  
d) not in 2NF

Answer: d  
Explanation: From the closure set of attributes we can see that the key for the relation is AB. The FD B->G is a partial dependency, hence it is not in 2NF.

3. Which of the following is/are false for RAW mode of FOR XML?  
a) XMLSCHEMA option does not returns an in-line XSD schema  
b) BINARY BASE32 returns the binary data in base32-encoded format  
c) Each row in the query result is transformed into an XML element  
d) None of the mentioned

Answer: b  
Explanation: XML was designed to transport and store data.

4. \_\_\_\_\_\_\_\_\_\_\_ refers to the ability of the system to recover committed transaction updates if either the system or the storage media fails.  
a) Isolation  
b) Atomicity  
c) Consistency  
d) Durability

Answer: d  
Explanation: In database systems, durability is the ACID property which guarantees that transactions that have committed will survive permanently.

5. Which utilities can we use to export data from sql server to a text file?  
a) DTS export wizard  
b) BCP  
c) ISQL  
d) DTS export wizard and BCP

Answer: d  
Explanation: The bcp utility bulk copies data between an instance of Microsoft SQL Server and a data file in a user-specified format.

6. You have a column that will only contain values from 0 to 256. What is the most economical data type to use for the column?  
a) TINYINT  
b) SMALLINT  
c) INT  
d) DECIMAL(1)

Answer: b  
Explanation: The bcp utility bulk copies data between an instance of Microsoft SQL Server and a data file in a user-specified format.

7. Problems occurs if we don’t implement a proper locking strategy  
a) Dirty reads  
b) Phantom reads  
c) Lost updates  
d) Unrepeatable reads

Answer: b  
Explanation: Phantom reads occur when an insert or delete action is performed against a row that belongs to a range of rows being read by a transaction.

8. Which of the following fixed database roles can add or remove user IDs?  
a) db\_accessadmin  
b) db\_securityadmin  
c) db\_setupadmin  
d) db\_sysadmin

Answer: a  
Explanation: The db\_accessadmin role manages security, but handles access to the database, as the name implies.

9. By default sql server has \_\_\_\_\_\_\_\_\_\_\_ isolation level  
a) READ COMMITTED  
b) READ UNCOMMITTED  
c) SERIALIZABLE  
d) REPEATABLE READ

Answer: a  
Explanation: READ UNCOMMITTED is the most optimistic concurrency isolation option available in SQL Server.

10. Which of the following pair of regular expression are not equivalent?  
a) 1(01)\* and (10)\*1  
b) x(xx)\* and (xx)\*x  
c) (ab)\* and a\*b\*  
d) x+ and x\*x+

Answer: c  
Explanation: (ab)\*=(a\*b\*)\*.