

<p style="text-align: center;">BSCCS2001: Practice Assignment with Solutions Week 1</p>

1. A programmer is working on the data structures that store data internally in a database. At what level of abstraction is the programmer working?
- ☐ Logical Level
 - ☐ View Level
 - ☐ Programming Level
 - ✓ ☒ Physical Level

Solution:

Logical Level represents the relational model and conceptual schema of the data.

View Level represents the user's view of the data i.e how the user sees the data

Physical level deals with the actual storage structure of the data internally in the form of trees and other data structures.

Programming level is not a level of abstraction.

2. From among the given types of applications, choose the ones for which DBMS will be a preferred choice over filesystems.
- ✓ ☒ Applications with large datasets.
 - ✓ ☒ Applications with concurrent transactions.
 - ☐ Applications with small datasets.
 - ☐ Applications with no dedicated database administrators.

Solution:

For applications with small datasets, the overhead in installing the DBMS will be much more than the advantage obtained due to reduced retrieval time.

If there is no dedicated personnel for maintaining a database, the performance will begin to deteriorate after a period of time.

3. By the concept of Logical Data Independence, a change in the logical level of DBMS should not affect which other level(s) of abstraction?
- ✓ ☒ View Level
 - ☐ Physical Level

- ☐ Both Physical and View Level
- ☐ None of the above

Solution:

Logical Data Independence: A change in Logical Level of DBMS should not affect the View Level.

4. By the concept of Physical Data Independence, a change in the physical level of DBMS should not affect which other level(s) of abstraction?
- ☐ View Level
 - ☐ Logical Level
 - ✓ ☒ Both Logical and View Level
 - ☐ None of the above

Solution:

Physical Data Independence: A change in Physical Level of DBMS should not affect either the View Level or the Logical Level.

5. Which model is widely used during the planning and designing phase of a database system?
- ☐ View Model
 - ✓ ☒ Entity-Relationship Model
 - ☐ Object Model
 - ☐ Relational Model

Solution: Entity-Relationship Model is used to define a high level view of the data entities and the relationships between them. It is used mainly for designing and planning the database structure.

6. Which of the following are advantages of DBMS over file based data management applications?
- ✓ ☒ Easy recovery of data
 - ✓ ☒ Consistency of data
 - ✓ ☒ Efficiency of operation
 - ☐ Ease of initial setup

Solution: Initial system setup is costly in the case of DBMS, whereas in file based systems, it is relatively easy and economical.

7. Which among the following is a good option for exchanging data among different systems over the internet?

- ☐ HTML
- ☐ MS Access
- ☐ SQL
- ✓ ☒ XML

Solution: HTML is a markup language used mainly for data presentation, whereas XML is widely used for sharing data over different systems over the web. The other two are not meant for information exchange over the internet.

8. Planning what attributes should be placed in which table of a database is a part of

- ☐ Attribute Design
- ✓ ☒ Logical Design
- ☐ Physical Design
- ☐ Subsystem Design

Solution: The design of structure of tables is a part of logical design.

9. Which of the following options are examples of data transactions?

- ✓ ☒ Transferring funds using e-wallets
- ✓ ☒ Booking a reservation in railways
- ☐ Increasing the data storage capacity
- ✓ ☒ Updating KYC in bank.

Solution: Any event which modifies the current state (value) of the data is a data transaction.

Increasing storage capacity does not make any changes in the current data.

10. Which data model aptly satisfies the need of a system which maintains large set of complex interconnected data, where the semantics of interconnection changes dynamically (like a social networking site)?

- ☐ Relational Model
- ☐ XML Model
- ☐ Object-Relational Model
- ☒ Graph Model

Solution: Refer Lecture 1.4.