Introduction to DB and DBMS

1. Select the most suitable words for each sentence.

a) The real world is made up of objects (material or not) with we want to work.

b) The representations world is made up of useful data to work.

c) The conceptual word is the knowledge and information we get through observation.

2. Choose the correct option.
The information is characterized by three elements:

- ◉ entities, relationships and hierarchies
- ◉ tables, records and values
- ◉ entities, attributes and values
- ○ entities, relationships and interrelationships

3. Select the options that are true:

- ☒ The entities are the real-world objects we want to conceptualize.
- ☐ The entities are confused among them.
- ☐ There are entities with some properties (of our interest) and others with none.
- ☒ Attributes are the entities properties in which we are interested.
- ☒ Values are specific content of attributes.

4. Select the options that are true:
The entities ...

- ☒ type are an abstraction.
- ☒ type refer to a class of things.
- ☐ type are concrete objects, distinguishable from other objects of the same class.
- ☐ instance are a set of entities type.
- ☐ instance are a generic type of entity.

5. Select the most suitable word(s) for each sentence.

a) A [null value] indicates the absence of information associated with a given attribute.

b) A [domain] is a set of correct values that can take a certain attribute.

c) All attribute or set of attributes that identify unequivocally instances of an entity is called [kev].

d) A set of values with common characteristics that make them compatible with each other and have a series of operations associated is called [data type].

6. Match different concepts of BD.

- Table [entity type]
- Row [entity instance]
- Column [attribute]
- Content [value]

7. Select the most suitable word(s) for each sentence.

a) A [file] is the computer implementation of a table.

b) Each intersection of a record and a field stores a [value].

c) Each implementation of an entity instance corresponds to a [record].

d) The implementation of each attribute is called [field].

8. Select the options that are true:
A database ...

- [ ] is a collection of attributes with their corresponding values.
- [ ] is a set of data called values.
- [ ] is a set of data with values and null values.
- [x] is a set of interrelated data files.

9. Match the different types of data access with its definition.

You get access to a record after accessing all that have a value smaller (or larger) in a field or more.	Sequential access by value
You get a record because it has an specific value in one or more of its attributes.	Direct access by value
You get it after getting all its previous records.	Sequential access by position
You get a record because it's stored in a certain position.	Direct access by position

10. Choose the right option.
The three levels of data abstraction are …

- ○ physical, logical and abstract
- ◉ physical, conceptual and logical
- ○ physical, logical and of values
- ◉ physical, logical and of views

11. Match the different types of DBMS with the evolutionary time to which they belong.

- The fifties — batch processing
- The sixties and the seventies — centralized systems
- The eighties — relational DB
- The nineties — distributed DB

12. Select the options that are true:

- ☒ A data warehouse is made by copies of the data.
- ☐ A data warehouse is interesting for the exchange of information between systems.
- ☒ XML is an standard to structure data.
- ☐ A data warehouse is used for strategic analysis-

13. Select the options that are true:
The DBMS can ...

- [x] make no predefined consults possible.
- [ ] guarantee the physical and logical dependence of data
- [ ] generate redundancies of data.
- [x] guarantee the integrity of data
- [x] make easy the concurrency of users.

14. Select the options that are true:

- [ ] The redundancy is the accepted repetition of data.
- [x] The redundancy can increase the loss of data integrity, specially when we are updating.
- [ ] The derived data are a type of duplication inadmissible.
- [ ] Transactions are sets of simple operations and redundant.
- [x] The locking is to prevent access to certain information during the time in which they are used for a transaction.
- [ ] The committee ANSI / X3 / SPARC proposes an architecture for DBMS with derived data and redundancies.

15. Select the options that are true:

- [ ] The DB languages can be classified according to the purpose in data definition languages and data encryption languages.
- [x] The data definition languages are also known as DDL.
- [ ] The data encryption languages are also known as DML.
- [ ] DML is the acronym for data management language.
- [x] SQL is the most used language in relational DBMS.

16. Select the options that are true:

- [x] The hierarchical model is a data model.
- [ ] The Wi-Fi model is a data model.
- [x] The relational model is a data model.

- [ ] The international model is a data model.
- [x] The network model is a data model.
- [ ] The LAN model is a data model.

17. Select the most suitable words for each sentence.

- The centralized DB systems refer to both small single-user systems running on a single computer and the large high-performance multi-user systems.
- The decentralized DB systems may include the distribution of the workload among different physical components of the system interconnected through an interconnection network.
- The client-server systems have its functionality distributed between the central server system and the multiple client systems that send requests to that server.
- The main purpose of parallel systems is to increase the speed of processing and I / O through the use of parallel CPU, memory and hard drives.

18. Select the options that are true:
Which of the following elements should be considered when distributing DB?

- [ ] Shared printer
- [x] Shared memory
- [x] Shared disks
- [ ] Hierarchical structure

19. Select the options that are true:
Which of the following are advantages of distributing BD?

- [x] Sharing the informatio
- [x] Local autonomy
- [x] Reliability
- [x] Accelerate query processing
- [x] Availability
- [ ] Accelerate processing synonymous

20. Select the options that are true:
The distribution of DB ...

- ☒ implies an increase in the costs of software development.
- ☐ implies a decrease in the costs of using the network.
- ☒ implies an increase in the possibility of errors.
- ☒ implies extra time in processing time.
- ☒ implies an increase in the availability of data.
- ☒ implies an increase in the local autonomy.

21. Select the most suitable words for each sentence.

- The [multiplication] implies that the whole DB is replicated on each node of the system.
- With the method of [division], BD is distributed so that no part is replicated on more than one node.
- When using the model of [distribution with main node], a node (main) contains the entire database, and each of the other nodes contains replicated any part of the database.
- With the methodology of [distribution with duplicates in selected nodes], no node contains the complete database, but each node replicates some part of the database, so that the entire DB globally considered is duplicated.

22. Select the most suitable words for each sentence.

- [Duplication] is the storage of the entire relationship, or fragments of this relation, in different network nodes.
- [Horizontal fragmentation] consists in dividing the tuples of a relationship (ie, rows) in two or more subgroups based on those values that have one or more attributes.
- [Vertical fragmentation] consists in dividing the attributes of the relationship (ie, columns) in different fragments. The resulting fragments contain the attributes more frequently consulted by node users.
- [Mixed fragmentation] involves applying both the horizontal and vertical fragmentation.