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| **Part** | **1** | **2** | **3** | **4** | **Total** |
| *maximum* | **25** points | **25** points | **25** points | **25** points | **100**G101010 pointsG |
| ***Your Score*** |  |  |  |  |  |

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**Topic: Database Systems**

Reading Assignment: Thoroughly read Chapter 1 in the course textbook(s).

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**Part 1 Glossary Terms - Compare and Contrast**

Review, in detail, each of these glossary terms from the realm of computer database systems and computer topics, in general. Then, in your own words, compare and contrast the terms.   
If applicable, use examples to support your definitions. Consult your notes or course textbook(s) as references.

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**(a) Structural Dependence VERSUS Structural Independence**

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**(b) Problems with File System Data Processing VERSUS Problems with Database Management Systems**

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**(c) Data Dependence VERSUS Data Independence**

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**(d) Data Redundancy VERSUS Data Anomalies**

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**(e) Database Designers VERSUS Database Developers**

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**Part 2 Completion: Fill the Blanks Exercises**

For each of these exercises, complete each sentence or phrase with the appropriate word or words.

**(1)** \_\_\_\_\_\_\_\_\_\_ is the result of processing raw data to reveal its meaning.

**(2)** Raw data must be properly \_\_\_\_\_\_\_\_\_\_ for storage, processing and presentation.

**(3)** \_\_\_\_\_\_\_\_\_\_ is data about data through which the end - user data are integrated and managed.

**(4)** A(n) \_\_\_\_\_\_\_\_\_\_ is a spur - of - the - moment question.

**(5)** \_\_\_\_\_\_\_\_\_\_ databases focus primarily on storing data used to generate information required to make tactical or strategic decisions.

**(6)** \_\_\_\_\_\_\_\_\_\_ exists when it is possible to make changes in the data storage characteristics without affecting an application program’s ability to access data.

**(7)** \_\_\_\_\_\_\_\_\_ exists when different and conflicting versions of the same data appear in different places.

**(8)** A(n) \_\_\_\_\_\_\_\_\_\_ develops when all required changes in the redundant data are not made successfully.

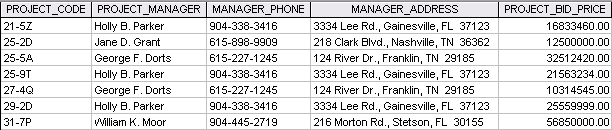
**(9)** \_\_\_\_\_\_\_\_\_\_ relates to activities that make a database operate more efficiently in terms of storage and access speed.

**(10)** Web and mobile technologies that enable " anywhere, anytime, always on " human interactions are forms of \_\_\_\_\_\_\_\_\_\_ .

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**Part 3 Short Answer Exercises**

Consider the data sheet file that follows and then answer the questions pertaining to this table of information. .



**(1)** How many records does the file contain? How many fields are there per record?

**(2)** What problem would you encounter if you wanted to produce a listing by city?

How would you solve this problem by altering the file structure?

**(3)** If you wanted to produce a listing of the file contents by last name, area code, city, state or postal zip code, how would you alter the file structure?

**(4)** What data redundancies do you detect? How could those redundancies lead to anomalies?

**(5)** Using your own name as the Project Manager, add an additional row to the data table using some fictional but realistic values for the other column entries.

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| --- | --- | --- | --- | --- |
| Project\_Code | Project\_Manager | Manager\_Phone | Manager\_Address | Project\_Bid\_Price |
|  |  |  |  |  |
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**Part 4 Essays Exercises**

Write a brief but complete answer to each of these questions / exercises.

**(1)** Review the topic of metadata and then discuss what value they provide to the database system.

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**(2)** Review and discuss some considerations when designing a database.

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**(3)** Discuss the problems associated with file systems. How do they challenge the types of information that can be created from the data as well as the accuracy of the information?

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**(4)** The Database Management System performs the following functions:

• Data Dictionary Management,

• Data Storage Management,

• Data Transformation and Presentation,

• Security Management,

• Multi - User Access Control,

• Backup and Recovery Management,

• Data Integrity Management,

• Database Access Languages and Application Interface,

• Database Communication Interface.

From the above list, discuss any four functions performed by the DBMS that guarantee the integrity and consistency of the data in the database.

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**(5)** What are the advantages of having the DBMS between the end user’s applications and the database?

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