1. [15 Points] Examine the main components in the architecture of modern DBMS   
   and briefly explain the functionalities of i) Storage Management, and ii) Query   
   Processing.

The architecture begins with SQL queries being fed through the query evaluation engine, and after that it will go through the files and access methods, the buffer manager, and the disk space manager, which all make up the DBMS. Finally, after all this the data is pulled from the database itself, to fulfill the query.

The storage management system is the interface that connects the data within the database with the queries attempting to access them. The Query Processing is what deduces what the query is attempting to pull from the database, and feeds it to the DBMS. (Chapter 1 slides 27-28)  
   
2. [15 Points] Briefly explain the concept of data independence in your own words.   
Give an example where physical data independence is useful.

Data independence is where the data structure and DBMS can be changed, without directly affecting the data. Physical independence specifically is where the data is protected from physical changes in the structure. This means changing the indexes, or the algorithms will not affect the data, as it is independent. (Chapter 1 slides, 16)

3. [10 Points] Please use an example to explain the importance and impact of   
database technology on an institute or organization such as Penn State   
University.

For an organization like Penn State, having good database technology can help provide timely access to data which increases productivity, letting the universe conduct business in a timely matter. (Chapter 1 slides, 38)

4. [60 Points] Pick any animal of your choosing. You will create a webpage about   
this animal using HTML. Things to include:   
• Main title that is underlined (ex. "All About Kangaroos")

<!DOCTYPE html>

<html>

<body>

<h1><u>All About Gorillas</u></h1>

<h2>Quick Facts</h2>

<ul>

    <li>Scientific Name: <i>Gorilla gorilla</i></li>

    <li>Population: <b>100,000-200,000</b></li>

    <li>Height: <b>4-6ft</b></li>

    <li>Weight: <b>up to 440lbs</b></li>

    <li>Gorillas are <b>primates</b> and <b>mammals</b></li>

</ul>

<h2>Top Predators</h2>

<ol>

    <li>Humans</li>

    <li>Leopards</li>

    <li>Crocodiles</li>

</ol>

<h2>About</h2>

<p>Gorillas are gentle giants and display many human-like behaviors and emotions, such as laughter and sadness. In fact, gorillas share 98.3% of their genetic code with humans, making them our closest cousins after chimpanzees and bonobos. The largest of the great apes, gorillas are stocky animals with broad chests and shoulders, large, human-like hands, and small eyes set into hairless faces. The two gorilla species live in equatorial Africa, separated by about 560 miles of Congo Basin forest. Each has a lowland and upland subspecies. Gorillas live in family groups of usually five to 10, but sometimes two to more than 50, led by a dominant adult male—or silverback—who holds his position for years.</p>

<h2>Images</h2>

<img src="https://upload.wikimedia.org/wikipedia/commons/thumb/b/bb/Gorille\_des\_plaines\_de\_l%27ouest\_%C3%A0\_l%27Espace\_Zoologique.jpg/440px-Gorille\_des\_plaines\_de\_l%27ouest\_%C3%A0\_l%27Espace\_Zoologique.jpg" alt="Gorilla1"

style="width:400px;height:500px;">

<img src="https://files.worldwildlife.org/wwfcmsprod/images/Mountain\_Gorilla\_Silverback\_WW22557/hero\_full/cg47pknak\_Mountain\_Gorilla\_Silverback\_WW22557.jpg" alt="Gorilla2"

style="width:400px;height:500px;">

<img src="https://cdn.theatlantic.com/thumbor/DYLnuAlnGW7qCeD07TBv3oP4u58=/0x141:3500x2110/1952x1098/media/img/mt/2016/11/RTR3NO4M/original.jpg" alt="Gorilla3"

style="width:400px;height:500px;">

<h2>Citations</h2>

<a href="https://www.worldwildlife.org/species/gorilla">Gorillas</a>

</body>

</html>

