**NAME**

**COLLEGE NUMBER**

**Part A**

**Master data attributes:**

Master attributes are drawn from the main entities in a database system. Each entity corresponds to a given item within the database. Usually, the main entities are contained in tables /classes whose objects are then defined:

Users

-*User\_ID; primary key*

*-username;*

*-user\_password;*

Role:

*-Role\_ID: primary key*

*-Role\_type*

Payments

*-paymentID*

*-paymentDate*

*-paymentamount*

Ii.) Master data is contained in the main database entities and represent the major transactional items within the dataset, so like in this case, the above would be considered as master data.

B.

I.) Input controls:

Input controls define the nature in which information is captured and entered into the database. Where some information has not been correctly captured for entry, the result is a myriad of errors which in the long run, end up having adverse effects on the overall system. These errors can be avoided by:

Having validation controls on form input fields. These validation controls for instance could define as to whether a number of allowed characters and the type of variable allowed in the data. For instance, in a case where integer is supposed to be entered as an input, the system should not capture anything less than that, the form should also be able to reject the strings and display messages of integers only as of the required inputs. Also, the input should have a drop-down that allows for numeric validation.

**Processing controls:**

Processing controls ensure that the data and information are analysed and intercepted correctly when it is needed. Some of the processing controls that could have been put in this scenario include the ability to put up a maker checker, the maker checker ensures that before a business process moves from one level to the next, someone has to validate the data being entered and ensure its correct, this way fewer errors are more likely to be realised

**Part C**

**Cloud computing:**

Is defined as the practice of establishing communication, management of information systems and data in remote servers. Cloud computing is a term that has been here for quite some time. Companies have used the cloud to host some of their most treasured assets and resources. The terms, software as a service, platform as a service are terms that have been used repetitively to refer to the process of managing software applications in these remote servers.

Legacy systems such as certain payroll application systems have been managed on the cloud before and users prefer them due to the following reasons:

1. **They are frequently maintained:** the fact that cloud applications are maintained by vendor partners makes it more reliable so it will be expected that the cloud app will always be up.
2. **Quick debugging:** Some of the cloud apps have automated tools that identify software bugs in production and quickly send reports to the software owners so that they can debug their apps and make further changes.
3. Cloud services are efficient in on-demand services since systems uptime is in most cases 100% and users can quickly modify or change the parameters of some applications running on the server.

The quality of services on the broad network access is higher, latency is equally high, when considering quality in a cloud environment, and the quality of services is measured by the output of the given items.

**Part D**

Ethernet protocols are used to connect computers within a network. The local area network cables are used to pass information from one computer to the other, with each cable being of a different length and measure. In most cases, the strength the network being transmitted may also vary depending on the network procedures and the package that the user has subscribed to.

Client-server computing refers to the process by which the hosting computer hosts the applications or code that is needed to be accessed and served by other applications within the network. During networking, a configuration can either be done at either IP or domain level and other computers within the network can access these applications across the network and utilise the resources that are on the server computer.

**PART E**

Social networking sites are great and powerful tools to pass information to a large targeted audience. The HR department can use social networking sites in several ways to leverage their best performance in the following ways:

* Pass information to the general public on some of the most amazing qualities and innovations that the company has been able to come up with so far. This process ensures that the image of the company is constantly projected out there so the right clients are also attracted to the company.
* The company can also use social media to inform the public on some of the most amazing qualities that they also ways look for when employing persons to join the company, people who posses these qualities can then be directed to the company’s job board to apply for the various job opportunities available in the website.

**PART F**

Electronic transfer systems have been here for quite some time, also known as EFT. EFT transfers also referred to as bank to bank transfers ensure that money is transferred from one bank to another, when this happens, the money is usually paid to the receiver in less than a few business days. The reason why EFT transfers are most efficient is that EFTs are regularly maintained, even if this means outsourcing them. Also, EFT, have in place several control mechanisms that ensure that transactions are counter checked in various forms and formats before the final deposits are made.

In the initial payroll system, one of the items that could have been missed is the fact that the system was not maintained. The most interesting thing about legacy applications is that they are regularly maintained.

**Significance of software maintenance**

1. Ensures that all code is up to date, especially where a particular framework that is no longer supported has been used in productions. Cases, where this was not implemented, has led to serious security vulnerabilities.
2. System maintenance ensures that the data get a second eye on analysis. Having the service of data engineers ensure that integrity containers within the data are all checked, that the existing system does not have SQL queries that could be reading from the incorrect tables.

**PART G**

For employees and staff who can connect to the Short-range wireless network: ultra-wideband (UWB), the payroll system, this is efficient for them unlike the WIFI, UWB perform and transmit data 10 times faster than the usual WIFI applications, this means that the data communication is equally faster and business queries are equally handled faster.

Though seems like a traditional method, Bluetooth devices have been used to share and transmit data from one peer machine to the next. The two peer devices have to be connected over the same network and be correctly paired with the right access codes and once communication has been established, the required files are transmitted over the network and exchanged among users. However, as a side unit though, this technology should not be used as it has been overcome with time and more powerful tools and applications exist that can do the same things.

**PART H**

The installation of the printers depends on several factors that the acquirer can consider, and these are affected by:

-Plan: this has something to do with the architecture; layout of the buildings and the information within the said architecture, this is crucial in understanding the process of laying out the network topology for these regions and locations:

-Source: The source of the printer will determine the pricing factor and taxation of that location

-make of the printer will determine the compatibility, any prevails known issues that have occurred with similar printers and how this can be addressed.

-Delivery: ensures the transport cost estimations are on time to factor in the correct budgets

-Return: Thee return policy ensures that the correct warranty is gotten from the supply to cater for future return demands

**PART I**

OLAP ensures that the data engineers and societies gave the correct 360-degree view of the kind of data that they are working with and processing, usually, this is key in comparing data from different databases:

Data aiming ensures that the data can be modelled and a comparison be made to identify a given pattern or trend that is associated with the data.

Models and algorithms have been previously used to predict and forecast the outcome of data elements within a population.

**PART J**

During the studies regarding the cost purchases of the printer, the NPV tries to identify the current value of the printer and associate it with the future value supposes it depreciates. An NPV comparison could also be made to compare other printers in the same domain at the same time and check their depreciation value.

The break-even analysis tries to measure the time the company will take to get the benefits of the payroll from the time it was acquired to the time it is now bringing in profit margins into the company. The breakeven point defines the time when the company is now actually achieved the return on the amount used in the development and then over the profits additionally added

**PART K**

Software customisation theory has lost of disadvantages. Many developers would rather choose to develop their applications rather than customise code since:

Every developer has their approach to developing an application, sometimes it takes time to identify and acclimatise to the approach.

There are potential bugs that are being created as the software is being customised, some of these bugs may not be achieved until the system goes into production.

**PART L**

1. Systems design involves the process of prototyping an application by drawing its blueprints. The prototype is essential in understanding the final look and feel of the products, in some cases, prototypes also offer potential bug points that the developers should work on.
2. Systems testing, under various environments, ensure that the system being developed has passed all case scenarios and suppose such a system goes into production, the weak areas identified during the development and testing do not occur during the production phase, this is the purpose of testing.
3. Implementation means the system is in use. One of the key factors after deployment is sorting called user feedback, it usually comes from the front end-users, during the first few periods after lunch front end users feedbacks should be seriously looked at.
4. Maintenance ensures that no potential bugs that could affect system performance eared patched. Also, maintenance should happen regularly during low business impact hours.