**Assignment 1**

**Introduction to Software Engineering**

**S.M.HassanAli (20K-1052)**

**Q1.**

The waterfall model along with the combination of integrated and configuration based software process would be most suitable:

* Since it is a plan driven and all the major requirements are already mentioned with no intention of major changes in the feature.
* Waterfall will allow it to deploy it quickly because it is a management-based software and requirements are easily understood too.
* Data breaching or privacy issue is not the major concern here rather than it is more approaching towards usability and its accessibility in many situations.
* Since it is interacting with other clinical information systems so it should be integrated with one of the previous made information system that will allow the exchange of data more easily.
* The major changes will only take place in the database of the system either to generate management information or printing the details.

**Q2.**

An incremental model would be most suitable for this scenario because:

* HBL wants to deploy this software as soon as possible which supports the fact that incremental approach creates software quickly.
* Its been mentioned that they need variety of models so this software life cycle will break the requirements into multiple standalone modules and in each stage an increment would be developed that would be functional and better due to several testing.
* A wide variety of users of different background would be using it thus giving many different types of feedback so other functions can be added easily when planning a next increment.
* Since it is a banking software it requires high quality testing which this model would provide because once the increment is deployed, it goes through the testing phase. Each iteration will ensure that no bug or error is left.
* As soon as the app has been released after fully developing the core features, more successive and efficient versions will be constructed to improve the usability and management of the app itself.

**Q3.**

* *Point of sale software* for a mart because waterfall model works well with smaller project and usually this software does not need requirement changes. It would be running in mart for years and most probably staff would never complain about it with even minor bugs.
* *Call center software* because all the major requirements will be prioritized at the analysis stage and there will be no much dependency on the end users during the development of the software.
* *Grading software* that were developed by teachers and for teachers, again a small sized project used for calculating the grades/averages/standard deviations etc. Hence no uncertain requirement will be needed in the future and it will be easy to manage using this model.

**Q4.**

**Incremental:**

Advantages:

* More efficient approach because the core feature is being updated in every iteration.
* Helps the customer to tell more accurate requirement for the next increment since the previous increments act as prototype.
* It has more successful rate because the management is done easily and the overall system is improved.

Disadvantages:

* Most of the time this approach does not work due to poor planning and designing.
* Requirements are broken down into modules so proper interface is required.
* It is an expensive model, the total cost of overall process is higher than many other models.

**Agile:**

Advantages:

* Through agile rapid delivery and development is done for software systems.
* Interaction with the customer throughout the whole process.
* New ideas are experimented because the cost is low.

Disadvantages:

* It requires more work and effort due to the interaction that can be on regular bases with more and more requirement changes.
* Sometimes it can become an everlasting project and developers could not be able to take another project unless it is done.
* At times due to over loaded requirement, predicted outcome is not achieved.