9> SDLC Models:

Software Development Life Cycle (SDLC) refers to a methodology for developing System. It provides a consistent framework of tasks and deliverables needed to develop Systems.

There are different software development life cycle models specify and design, which are followed during the software development phase. These models are also called "Software Development Process Models".

(i) Waterfall Model: This model is basically used for small projects. The stages of waterfall models are-

1> Feasibility Study 2> Requirement Analysis and Specification

3> Design 4> Coding ~~and testing~~ 5> Testing

6> Deployment 7> Maintanance

There are two types of waterfall Model:

(i) Classical waterfall Model

(ii) Iterative Waterfall Model

(ii) Prototyping Model: This model is used when the customer do not know the exact project requirements beforehand. In this model, a prototype of the end product is first developed, tested and ~~refined~~ refined as per customer feedback repeatedly till a final acceptable prototype is achieved which forms the basis for developing the final product.

(iii) Spiral Model: This is one of the most important SDLC model which provides support for Risk Handling. This model looks like a Spiral with many loops. The radius of the Spiral at any point represent the cost and the angular dimension represent the progress.
There are four phases of Spiral model –

(i) Identify Objectives
(ii) Perform risk analysis
(iii) Develop and Test
(iv) Review and evaluate

(iv) RAD Model: The Rapid Application Development model is based on prototyping and iterative development with no specific planning involved. When the customer has well-know requirements, RAD Model can be used.
This model consists of 4 basic phases:

1) Requirements planning
2) User Description
3) Construction
4) Cutover

(v) Incremental Model:

The incremental process model is working through multiple stages. First, a simple working system implementing only a few basic features is built and then that is delivered to the customer. Then thereafter many successive iterations are implemented and delivered to the customer until the desired system is released. The four phases of this model are:

1) Requirement Analysis 2) Design & Development

3) Testing 4) Implementation.

(vi) V-Shaped Model: The V-model is a type of SDLC Model where process executes in a sequential manner in V-Shape. It is based on the association of a testing phase for each corresponding development stage. Development of each phase directly associated with the testing phase. V-model contains verification phases on one side and validation phases on the other side.

- SEI-CMM: Software Engineering Institute (SEI) uses an assesment that results in a five point grading scheme. The grading scheme determines compilance with a capability maturity model (CMM) that defines key activities required at different levels of process maturity. There are the five process maturity levels that are established by SEI approach.

Level 1: Initial

Level 2: Repeatable

Level 3: Defined

Level 4: Managed

Level 5: Optimizing