**Assignment [Module 1]**

**Question 1**

**What is SDLC?**

**Answer**

SDLC is a structure imposed on the development of a software product that defines the process for planning, implementation, testing, documentation, deployment, and ongoing maintenance and support.

A Software Development Life Cycle is essentially a series of steps, or phases, that provide a model for the development and lifecycle management of an application or piece of software.

The methodology within the SDLC process can vary across industries and organizations, but standards such as ISO/IEC 12207 represent processes that establish a lifecycle for software, and provide a mode for the development, acquisition, and configuration of software systems.

**Question 2**

**What is software testing?**

**Answer**

Software Testing is a process used to identify the correctness, completeness, and quality of developed computer software.

**Question 3**

**What is Agile Methodology?**

**Answer**

The Agile Methodology is a project management approach that involves breaking the project into phases and emphasizes continuous collaboration and improvement.

**Question 4**

**What Is SRS?**

**Answer**

A Software Requirements Specification(SRS) is a complete description of the behavior of the system to be developed.

It includes a set of use cases that describe all of the interactions that the users will have with the software.

**Question 5**

**What is OOPS?**

**Answer**

OOP is an Object Oriented Programming technique that combines data and instructions for processing that data into an object that can be used within the program.

Object Oriented Programming provides concepts that help modelling complicated systems of real world into manageable software solutions.

**Question 6**

**Write basic concepts of OOP?**

**Answer**

OOPS Concepts:

1. Object
2. Class
3. Inheritance
4. Encapsulation
5. Polymorphism
6. Abstraction
7. Message Passing

**Question 7**

**What is Object?**

**Answer**

Object is instance of class.

**Question 8**

**What is class?**

**Answer**

Class is a structure in which we can have member functions and member variables.

**Question 9**

**What is Encapsulation?**

**Answer**

Encapsulation in oops is the concepts of binding fields(object state) and methods(behavior) together as a single unit.

**Question 10**

**What Is Inheritance**

**Answer**

Inheritance is the process in which, object of one class cane acquire the properties of another class.

**Question 11**

**What is Polymorphism?**

**Answer**

Polymorphism is the method in an object-oriented programming language that performs different things as per the object’s class, which calls it.

**Question 12**

**Draw use case on Online Book Shopping**

**Answer**

**Question 13**

**Draw use case on Online Bill Payment System(Paytm)**

**Answer**

**Question 14**

**Write SDLC phases with a basic introduction**

**Answer**

SDLC Phases :

1. Requirements Gathering :

Establish Customer Needs

1. Analysis :

Model and specify the requirements - “what”

1. Design :

Model and specify solution – “why”

1. Implementation :

Construct a solution in software

1. Testing :

Validate the solution against the requirements.

1. Maintenance :

Repair defects and adapt the solution to the new requirements.

**Question 15**

**Explain phases of waterfall model.**

**Answer** A waterfall model is a software development model that involves a sequential and structured approach to project management and software development.

Phases of waterfall model :

1. Requirements gathering and Analysis :

The first phase involves gathering requirements from stakeholders and analysing them to understand the scope and objectives of the project.

1. Design phase :

Once the requirements are understood, the design phase begins. That involves creating a detailed design document that outlines the software architecture, user interface and system components.

1. Implementation and unit testing :

The implementation phase involves coding the software based on design specification.

1. Integration and system testing :

In the testing phase, the software is tested as a whole to ensure that it meets the requirements and is free from defects.

1. Deployment :

Once the software has been tested and approves, it is deployed to the production environment.

1. Maintenance :

The final phase of the waterfall model is maintenance, which involves fixing any issues that arise after the software has been deployed and ensuring that it continues to meet the requirements over time.

**Question 16**

**Write phases of spiral model**

**Answer**

The waterfall methodology is a project management approach that emphasize a linear progression from beginning to end of a project.

Phases of spiral model :

1. Planning : The first phase of spiral model is the planning phase, where the scope of the project is determined and a plan is created for the next iteration of the spiral.
2. Risk Analysis : In the risk analysis, the risks associated with the project are identified and evaluated.
3. Engineering : In the engineering phase, the software is developed based on the requirements gathered in the previous iteration.
4. Evaluation : In the evaluation phase, the software is evaluated to determine if it meets the customer’s requirements and if it is of high quality.

**Question 17**

**Write Agile Manifesto principles**

**Answer**

12 principles of Agile Manifesto :

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software
2. Welcome changing requirement, even late in development. Agile processes harness change for the customer’s competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for a shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build project around motivated individuals. Give them environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face to face conversation.
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity – the art of maximizing the amount of work not done – is essential.
11. The best architectures, requirements, and design emerge from self – organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

**Question 18**

**Explain working methodology of agile model and also write pros and cons.**

**Answers**

Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product.

Pros :

1. Is a very realistic approach to software development
2. Promotes teamwork and cross training.
3. Functionality can be developed rapidly and demonstrated.
4. Resources requirements of minimum.
5. Suitable for fixed or changing requirements.
6. Delivers early partial working solutions.
7. Minimal rules documentation easily employed.

Cons :

1. Not suitable for handling complex dependencies.
2. More risk of sustainability, maintainability, and extensibility.
3. An overall plan, an agile leader and agile PM practice is a must without which it will not work.
4. Strict delivery management dictates the scope, functionality to be delivered, and adjustments to meet the deadline.
5. Transfer of technology to new team members may be quite challenging due to lack of documentation.

**Question 19**

**Draw use case on online shopping product using cod.**

**Answer**

**Question 20 :**

**Draw use case on online shopping product using payment gateway.**

**Answer**