Module 1

**Question 1**: **what is SDLC?**

**Answer:** SDLC is the software development life cycle which is cost- effective and time efficient process that development teams use to design and built high quality software.

**Question 2: what is software testing?**

**Answer:** software testing is the act of examining the artifacts and the behavior if the software under test by validation and verification. Or software testing is the process of evaluating and verifying that a software product or application does what it is supposed to do.

**Question 3: what is agile methodology?**

**Answer:** the agile methodology is a project management approach that involves breaking the project into phases and emphasizes continues collaboration and improvement. Teams follow a cycle of planning, executing and evaluating.

**Question 4: what is SRS?**

**Answer:** SRS means software requirement specification is a document that describes what the software will do and how it will be expected to perform. It also describes the functionality the product needs to fulfill the needs of all business users.

**Question 5: what is oops?**

**Answer:** OOPS is object- oriented programming is a programming paradigm based on the concept of object, which can contain data and code. The data is in the form of fields, and the code is in the form of procedures are attached to them and can access and modify the object’s data fields.

**Question 6: write basic concept of OOPS.**

**Answer:** there are four types of fundamental concepts of OOPS.

1. Inheritance
2. Encapsulation
3. Polymorphism
4. Data abstraction.

**Question 7: what is object?**

**Answer:** an object can be defined as data field that has unique attributes and behavior.

**Question 8: what is class?**

**Answer:** A class is way of organizing information about a type of data so a programmer can reuse elements when making multiple instances of that data type.

**Question 9: what is encapsulation?**

**Answer:** encapsulation is the way to restrict access to some components of an object, so users cannot access state values for all of the variables of a particular object. This can be used to hide both data members and data functions or methods associated with an instantiated class or object.

**Question 10: what is inheritance?**

**Answer:** when class derives from another class. The child class will inherit all the public and properties and methods from the parent class.in addition, it can have its own properties and methods.

**Question 11: what is polymorphism?**

**Answer:** polymorphism is the one of the most importance concepts in OOPs. It describes the ability of something to be having or to be displayed in more than one form.

**Question 12: Draw use case on online book shopping**

**Answer:**

Select the book

Place order

Add amount

Enter name, account no., cvv no

Rupay

Chose payment method

Select the address

Select the option Buy now

**Question 13:** **Draw use case on online bill payment system** **(paytm).**

**Answer:**

pay

Add Amount

Add Bank detail

Select Bank

Select payment system (Paytm)

Proceed (save the bill, home etc..)

Service number

Select district

Select electricity board

Select state

Electricity board

**Question 14: write SDLC phases with basic introduction**

**Answer:** Software development life cycle has 6 phases which is given below

1. Requirements collection/ Gathering: Establish customer needs.
2. Analysis: Model and Specify the requirements “ what”
3. Design: Model and Specify a Solution- “why”
4. Implementation: Construct a solution in software
5. Testing: Validate the solution against the requirements
6. Maintenance: Repair defects and adapt the solution to the new requirements.

**Question 15: Explain Phases of waterfall model**

**Answer:** There are 5 phases of waterfall model.

1. Requirement and planning: This phase of waterfall project management identifies what the project should accomplish.
2. Design: this phase solidifies and documents all your decisions here. You develop solutions that can solve the projects requirements.
3. Implementation: this phase of the project management process executes your project plan and design in order to produce the designed product.
4. Verification and testing: testing verify that the product developed in the implementation phase delivers the entire projects requirement.
5. Maintenance: this phase involves making minor modification to improve the product developed during implementation.

**Question 16: write phases of spiral model**

**Answer:** It has 4 phases which is given below

1. Determine objectives and find alternate solution: this phase includes requirements gathering and analysis. Based on the requirements, objectives are defined and different alternate solutions are proposed.
2. Risk analysis and resolving: in this all the proposed solutions are analyzed and any potential risk is identified, analyzed and resolved.
3. Develop and test: this phase include the actual implementation of the different features. The entire implemented feature then verified with thorough testing.
4. Review and planning of the next phase: in this phase software evaluated by the customer. It also includes risk identification and monitoring like cost overrun or schedule slippage and after that planning of the next phase is started.

**Question 17: write agile manifesto principles**

**Answer:**

1. Individual and Interactions
2. Working product
3. Customer collaboration
4. Responding to change.

**Question 18: Explain working methodology of agile model and also write pros and cons.**

**Answer:**

* Agile SDLC model is a combination of iteration of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product.
* Agile methods break the product into small incremental builds.
* These builds are provided in iterations.
* Each interaction typically lasts from about one to three weeks.
* Every iteration involves cross functional team working simultaneously on various areas like planning, requirements analysis, design, coding, unit testing, and acceptance testing.
* At the end of the iteration a working product is displayed to the customer and important stakeholders.

**Pros:**

1. Super quality product
2. Customer satisfaction
3. Better control
4. Improved project predictability
5. Reduced risks
6. Increased Flexibility
7. Continuous improvement
8. Improved team morale
9. More relevant metrics

**Cons:**

1. Less predictable
2. More time and commitments
3. Greater demands on developers and clients
4. Lack of necessary documentation
5. Projects easily fall off track.

**Question 19: Draw usecase on online shopping product using COD**

**Answer:**

Placed order

COD

Select Payment method

Select Address

Buy now/ select size (cloths)

Select the product

**Question 20: Draw usecase on online shopping product using payment gateway.**

**Answer:**

Choose product

Submit order

Select the address

Payment method ( gateway)

Enter details of card

Add amount

Add pin

Placed order