1. Explain the following agile methodologies Scrum, Kanban, Extreme Programming.
Scrum

a. **Scrum:**

SCRUM is an agile development method which concentrates specifically on how to manage tasks within a team-based development environment. Basically, Scrum is derived from activity that occurs during a rugby match. Scrum believes in empowering the development team and advocates working in small teams (say- 7 to 9 members)

b. **Kanban**

Kanban originally emerged from Japanese word that means, a card containing all the information needed to be done on the product at each stage along its path to completion. This framework or method is quite adopted in software testing method especially in agile testing.

c. **Extreme Programming**

Extreme Programming technique is very helpful when there is constantly changing demands or requirements from the customers or when they are not sure about the functionality of the system. It advocates frequent "releases" of the product in short development cycles, which inherently improves the productivity of the system and also introduces a checkpoint where any customer requirements can be easily implemented. The XP develops software keeping customer in the target.

2. Who are the members of an agile team and what are their roles?

a. Scrum Master
b. Product Owner (Product Manager)
c. Software Engineers
d. Architect
e. Quality Assurances
f. Product designer/developer

Product Owner Roles

a. Responsible for market, business case, and competitive analysis
b. Responsible for long and short term product vision
c. Writes user stories

Program Manager Role

a. Manages planning process
b. Manages overall program schedule
c. Drives multiple releases/projects
d. Provides access to tools and people
e. Owns all action items for the project until he/she finds the right owner
f. Facilitates Release Planning & Retrospective
g. Owns reporting on project status, to all directions
h. Coordinates other release support
i. Responsible for risk assessment & mitigation

Scrum Masters Role

a. Manages 1 sprint at a time
b. Facilitates Sprint Planning, Review & Retrospective
c. Finds and works to remove roadblocks
d. Helps to motivate the team and keep them excited
e. Protects team from outside distractions
f. Facilitates communication between roles for every aspect of the project
g. Responsible for keeping release/project information consolidated, organized and up to date
h. Drives the cross-functional team at all levels
i. Responsible for throughput (team velocity)
j. Drives the execution of sprint items

Architect Roles

a. Leads the technical direction of overall system
b. Responsible for end-to-end cross functional system design and communication
c. Works with the PM to group features based upon the Architectural Elements which support them, an influence on priorities

Engineering Manager Roles

a. Ensures the successful completion of Work-in-progress (WIP)
b. Understands the process of product creation

Product Developer

a. Responsible for creation of product

Quality Assurance

a. Prevents defects from entering the system, as opposed to finding them at the end
b. Facilitates building integrity into the software product and development process

Product Developer Role

a. Responsible for creation of product

3. List 5 Project Management Tools

a. Trello
b. Asana
c. Workzone
d. Scoro
e. PROOFHUB

4. List the Phases of Software Development Life Cycle.

a. Planning
b. Building (Designing)
c. Testing
d. Reviewing
e. Deploying
f. Defining