DASS Quiz-1

Time: 45 mins Total Marks: 30

Name:
Roll Number:

1. Which phase in the SDLC requires the most effort? (1)
2. What is the main aim of Feasibility study? (1)
3. What is the main aim of requirements analysis? (1)
4. List 2 agile methods. (1)
5. List the 3 different types of software (with brief explanation). (3)
6. Differentiate between programs and software products. (3)
7.
    a. What are the major problems with the classical waterfall model? (2)
    b. Explain evolutionary model with iteration. (1.5)
    c. List 3 advantages of evolutionary model with iteration. (1.5)
8.
    a. Why are lifecycle models followed in software projects? (2)
    b. List the 6 major elements of a SDLC. (3)
9. Explain the Spiral Model and describe each of the 4 quadrants. (5)
10.
    a. Explain exploratory style. (1)
    b. List its drawbacks. (2)
    c. Mention how software engineering overcomes these obstacles. (2)

Answer Key

1. Maintenance Phase (1)

2. The main aim of the feasibility study is to determine whether developing the product is:
    a. Financially worthwhile (0.5)
    b. Technically Feasible (0.5)

3.
    a. Understand the exact requirements of the customer (0.5)
    b. Document them properly (0.5)

4. Any 2 of the following: (0.5 + 0.5)
    a. ASD - Adaptive Software Development Crystal
    b. FDD - Feature Driven Development
    c. DSDM - Dynamic Systems Development Method
    d. Lean Software Development
    e. Scrum
    f. XP - eXtreme Programming

5.
    a. Custom (1)
    For a specific customer
    b. Generic (1)
    COTS (Commercial Off The Shelf)
    c. Embedded (1)
    Build into Hardware

6. Any 3 of the below differences: (1+1+1)

Programs	Software Products
Usually small in size	Usually large in size
Author himself is sole user	Large number of users
Single developer	Multiple developers
Lacks proper UI	Well-designed UI
Lacks proper documentation	Well-documented
Ad hoc development	Systematic Development

7.

a. The major problems are: (1+1)
   i. Classical waterfall model is idealistic:
      - assumes that no defect is introduced during any development activity.
      - However, in practice defects do get introduced in almost every phase of the life cycle.
   ii. Defects usually get detected much later in the life cycle. For example, a design defect might go unnoticed till the coding or testing phase

b. Evolutionary model with iteration uses a combination of iterative and incremental development. (0.5)
   It includes the following features:
   i. a new release may include new functionality (0.5)
   ii. existing functionality from the current release may also have been modified. (0.5)

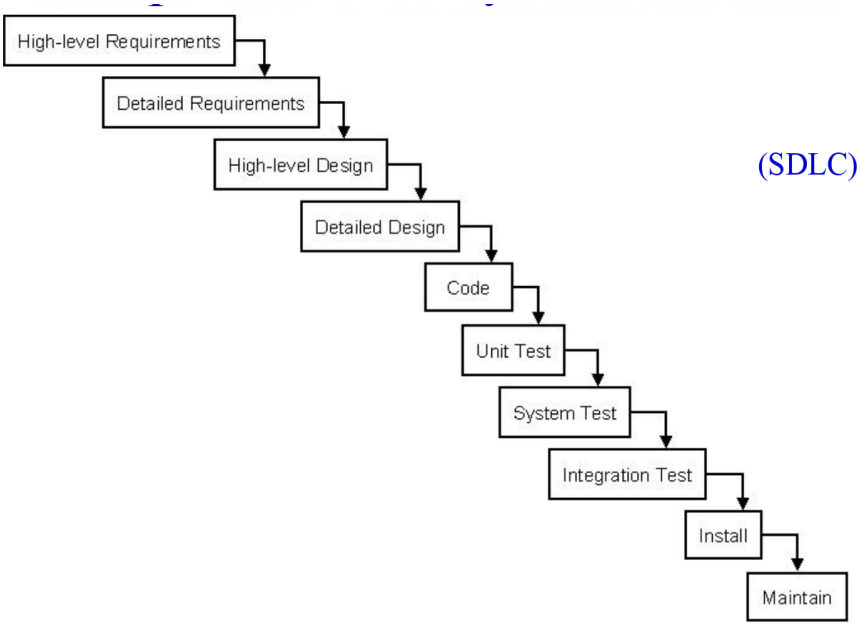
c. The advantages are:
   i. Training can start on an earlier release (0.5)
   ii. Markets can be created for functionality that has never been offered. (0.5)
   iii. Frequent releases allow developers to fix unanticipated problems quickly. (0.5)

8.

a. A software project will never succeed if activities are not coordinated: (2)
   one engineer starts writing code, another concentrates on writing the test document first, yet another engineer first defines the file structure and another defines the I/O for his portion first. Adherence can lead to accurate status reports. Otherwise, it becomes very difficult to track the progress of the project and the project manager would have to depend on the guesses of the team members.

b.
   i. Feasibility study (involves business case) (0.5)
   ii. Requirements analysis and specification (0.5)
   iii. Design (0.5)
   iv. Coding (0.5)
   v. Testing (0.5)
   vi. Maintenance (0.5)

   Can also mention points in the diagram:



(SDLC)

9. The Spiral model is a type of SDLC model in which:
    a. Each loop of the spiral represents a phase of the software process. (0.5)
    b. There are no fixed phases in this model, they vary from project to project. (0.5)

- **Objective Setting (First Quadrant):** (List any 2, 0.5+0.5)
    - Identify objectives of the phase,
    - Examine the risks associated with these objectives.
    - Find alternate solutions possible.

- **Risk Assessment and Reduction (Second Quadrant):**
    - For each project, detailed risk analysis is carried out. (0.5)
    - Steps are taken to reduce the risk. (0.5)

- **Development and Validation (Third quadrant):**
    - Develop and validate the next level of the product. (1)

- **Review and Planning (Fourth quadrant):**
    - review the results achieved so far with the customer and plan the next iteration around the spiral. (1)

10.

a.

i. The early programmers used an exploratory (also called build and fix) style. In the build and fix (exploratory) style, normally a 'Dirty' program is quickly developed. (0.5)

ii. The different imperfections that are subsequently noticed are fixed. (0.5)

b.

i. Can successfully be used for very small programs only. (1)

ii. Besides the exponential growth of effort, cost, and time with problem size: (1)

- Exploratory style usually results in unmaintainable code.
- It becomes very difficult to use the exploratory style in a team development environment.

c. Software engineering overcomes the obstacles as it:

i. Provides a medium to acquire skills to develop large programs. (0.5)

ii. Has the ability to solve complex programming problems. (0.5)

iii. Contains techniques of Specification, design, user interface development, testing, project management, etc. (0.5)

iv. Can develop large, high quality software systems. (0.5)