Software Engineering Questions

Latest Software Engineering MCQ Objective Questions

Question 1:

View this Question Online >

Which of the following best describes information gathering in the context of software engineering?

1. Gathering user requirements for software development.

2. Collecting data about software bugs and issues.

3. Conducting market research for software product pricing.

4. Obtaining feedback on user satisfaction with existing software.

Answer (Detailed Solution Below)

Option 1 : Gathering user requirements for software development.

Software Engineering Question 1 Detailed Solution

Concept:

- **Information gathering** in the context of software engineering refers to the process of collecting and gathering relevant information about user needs, expectations, and desired functionalities for software development.
- This process involves interacting with users and stakeholders to understand their requirements, preferences, and constraints.

Explanation:

- The **purpose of information gathering is to ensure that the software system being developed aligns with the needs and goals of the intended users**.
- It helps in defining the scope of the project, identifying key functionalities, and establishing the overall requirements for the software.
- By gathering user requirements, software engineers can gain insights into the specific features, user interactions, system behavior, and performance expectations that should be considered during the development process.
- This information serves as a foundation for subsequent phases of software engineering, such as software design, development, and testing.
- While collecting data about software bugs and issues, conducting market research for pricing, and obtaining feedback on user satisfaction with existing software are all relevant activities in software engineering, they do not encompass the comprehensive process of information gathering for software development.

Hence, the correct answer is **option 1**.

The primary output of the information gathering phase in software engineering?

1. Project plan and schedule

2. Software design specifications

3. User requirements document

4. Testing and quality assurance plan

Answer (Detailed Solution Below)

Option 3 : User requirements document

Software Engineering Question 2 Detailed Solution

The primary output of the information gathering phase in software engineering is the **User Requirements Document**.

🔑 Key Points

- This document captures and documents the needs, expectations, and desired functionality of the users or stakeholders for the software system being developed.
- During the information gathering phase, software engineers gather information through various techniques such as interviews, surveys, workshops, and studying existing systems or processes. They interact with users and stakeholders to understand their requirements, preferences, and constraints.
- The User Requirements Document serves as a comprehensive and structured representation of the gathered information. It typically includes detailed descriptions of the software's intended functionalities, user interactions, system behavior, performance expectations, and any specific constraints or regulations that need to be considered.
- The User Requirements Document is a vital communication tool between software developers and stakeholders.
- It ensures that there is a shared understanding of the project's objectives and serves as a foundation for subsequent phases such as software design, development, and testing.
- It helps to align the development team's efforts with the users' needs and provides a basis for evaluating the success of the software system once it is developed.

Hence, the correct answer is **option 3**.

Question 3:

View this Question Online >

Which of the following factors is NOT typically considered during a feasibility study?

1. Technical feasibility

2. Legal feasibility

3. Operational feasibility

4. Design feasibility

Answer (Detailed Solution Below)

Option 4 : Design feasibility

Software Engineering Question 3 Detailed Solution

Concept:

During a feasibility study, various factors are typically considered to assess the viability of a project. These factors include **technical feasibility, legal feasibility,** and **operational feasibility**. However, **design feasibility is not typically considered as a separate factor in a feasibility study**.

Explanation:

- **Technical feasibility** involves evaluating whether the project can be implemented from a technical standpoint. It assesses factors such as the availability of required technologies, expertise, and infrastructure to determine if the project is technically achievable.
- **Legal feasibility** examines the project's compliance with legal and regulatory requirements. It ensures that the project does not violate any laws, regulations, or intellectual property rights.
- **Operational feasibility** focuses on whether the project can be integrated into existing systems and processes effectively. It considers factors such as the project's compatibility with current operations, potential impacts on workflows, and organizational readiness for change.
- **Design feasibility**
  - It is more closely related to the execution of the project rather than its initial assessment

- It involves developing a detailed design plan that takes into account user requirements, system architecture, user interface, and other design aspects.
  - **Design feasibility** is typically considered during the later stages of project planning and execution, after the initial feasibility study.
  - While **design feasibility** is crucial for project success, it is not typically listed as a separate factor in a feasibility study, which primarily focuses on assessing the project's technical, legal, and operational aspects.

Hence, the correct answer is **option 4**.

Question 4:

Purpose of a feasibility study in software engineering?

1. To assess the market potential of a software product.

2. To evaluate the technical complexity of software development.

3. To determine the financial viability of a software project.

4. To analyze the performance and scalability of existing software.

Answer (Detailed Solution Below)

Option 3 : To determine the financial viability of a software project.

Software Engineering Question 4 Detailed Solution

The correct answer is **option 3**.

Feasibility Study

- A **feasibility study** in software engineering is conducted **to assess the economic and**

A **feasibility study** in software engineering is conducted **to assess the economic and financial viability of a proposed software project**.

- It involves analyzing the project's costs, benefits, risks, and potential return on investment.
- The study helps stakeholders evaluate whether it is feasible to proceed with the project based on its expected financial outcomes.
- The goal is to determine if the project is practical and worth pursuing before committing resources to its development.
- The feasibility study helps in making informed decisions and identifying potential risks and challenges early on.

Question 5:

View this Question Online >

What is the key output of a feasibility study in software engineering?

1. User requirements document

2. Software design specifications

3. Feasibility report

4. Test plan and test cases

Answer (Detailed Solution Below)

Option 3 : Feasibility report

Software Engineering Question 5 Detailed Solution

The key output of a feasibility study in software engineering is a **Feasibility report.**

Concept:

- A **feasibility study** is conducted to determine the practicality and viability of a software

project.

- It assesses various aspects such as **technical feasibility, economic feasibility, operational feasibility, and legal feasibility**.
- The study examines factors such as the project's objectives, scope, resource requirements, potential risks, and potential benefits.

Explanation:

- Based on the findings of the **feasibility study**, a **feasibility report is prepared**.
- **Feasibility report** summarizes the analysis conducted during the study and presents conclusions and recommendations regarding the feasibility of the software project.
- It provides stakeholders with a clear understanding of whether the project should proceed and if any adjustments or considerations need to be made.
- The feasibility report is an essential document for decision-making, as it helps stakeholders determine if the project is worth pursuing, identify potential challenges and risks, and allocate necessary resources effectively.
- It serves as a foundation for subsequent phases of the software development life cycle, such as user requirements gathering, software design, and development planning.

Hence, the correct answer is **option 3**.

Top Software Engineering MCQ Objective Questions

Question 6

MS Office, Photoshop and Animagic are examples of:

1. Device driver

2. Application software

3. System software

4. Operating system

Answer (Detailed Solution Below)

Option 2 : Application software

Software Engineering Question 6 Detailed Solution

The correct answer is **Application software**

📌 Important Points

- **MS Office**, **Photoshop**, and **Animagic** are examples of **Application software**
- **MS Office** is a **software bundle** provided by Microsoft.
- It includes software like **MS Word**, **MS Excel**, **MS Powerpoint**, **MS Outlook**, **MS Access**, **MS One Note**, and others.

📝 Additional Information

- **Photoshop** is a powerful **photo editing tool** by **Adobe**.
- An **Operating System** (OS) is an interface between a **computer user** and **computer hardware**.
- An operating system is software that performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

Question 7

Which of the following represents the life-cycle of software development ?

1. Analysis -> Design -> Coding -> testing -> operation and maintenance

2. Analysis -> Design -> Coding -> operation and maintenance -> testing

3. Design -> Analysis -> Coding -> testing -> operation and maintenance

4.   Design -> Analysis -> Coding -> operation and maintenance -> testing

Answer (Detailed Solution Below)

Option 1 : Analysis -> Design -> Coding -> testing -> operation and maintenance

Software Engineering Question 7 Detailed Solution

Concept:

Software development life cycle is the logical process of developing a system that satisfies customer needs and can be developed within the predefined schedule and cost.

Explanation:

Various phases of the software development life cycle are :

1) Analysis: First thing is to gather and analyze the requirements of the system. The information domain, function, behavioral requirements of the system are understood. These requirements are then well documented.

2) Design: After collecting and analyzing all necessary requirements, design architecture is prepared.

3) Coding: After the design, one can develop the code for the system using some programming language. During this, design is translated into a machine-readable form.

4) Testing: It is done to uncover the errors and fix the bugs.

5) Maintenance: Sometimes errors may get produced after system installation and sometimes the requirements get changed. At that time, the maintenance of the system is needed.

Question 8

A multimedia project is said to be _____ and user-interactive when users are given navigational control.

1. Hypertext

2. Non-linear

3. Linear

4. Secure

Answer (Detailed Solution Below)

Option 2 : Non-linear

Software Engineering Question 8 Detailed Solution

Concept:

Mutlimedia means combination of text, audio, video, graphics, and animation. Mutlimedia project are the multimedia materials which are presented on computer screen.

Explanation:

Phases of a multimedia project are : planning, designing , testing and delivering.

Some points about multimedia project :

- Interactive mutlimedia gives the navigational controls to the user. It control what elements are to be delivered.
- It requires creative skills, tools and organization talent to create mutlimedia projects.
- There are two categories in multimedia : linear and non - linear.
- Linear multimedia is without any navigational control example cinema.
- Non - linear provides user interactivity to control progress. Example : computer game.
- Mutlimedia system must be integrated, handled digitally and usually interactive.
- Mutlimedia can be delivered using optical disk, web or distributed network.

Question 9

Which of the following is/are the phases of system development life cycle?

1. Implementation

2. Feasibility study

3. All of the options

4. Coding

Answer (Detailed Solution Below)

Option 3 : All of the options

Software Engineering Question 9 Detailed Solution

Concept:

System development life cycle (SDLC) is a process followed for a software project, within a software organization. It consists of a detailed plan describing how to develop, maintain, replace and alter or enhance specific software.

The life cycle defines a methodology for improving the quality of software and the overall development process.

Phases of SDLC

Feasibility study
↓
Requirements analysis and specification
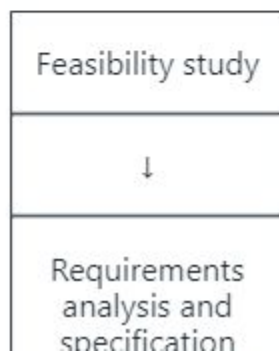
↓
Design
↓
Coding and unit testing
↓
Integration and system testing
↓
Maintenance

Therefore, all options are correct

Question 10

Software consists of _____.

1. Set of instructions + operating procedures

2. Programs + documentation + operating procedures

3. Programs + hardware manuals

4. Set of programs

Answer (Detailed Solution Below)

Option 2 : Programs + documentation + operating procedures

Software Engineering Question 10 Detailed Solution

Concept :

The software comprises the entire set of programs, procedures, and routines associated with the operation of a computer system. The term was coined to differentiate these instructions from hardware—i.e., the physical components of a computer system.

Programs + documentation + operating procedures is the correct answer.

Question 11

Regression testing is primarily related to

1. Functional testing

2. Development testing

3. Data flow testing

4. Maintenance testing

Answer (Detailed Solution Below)

Option 1 : Functional testing

Software Engineering Question 11 Detailed Solution

Explanation:

- The purpose of regression testing is to confirm that a recent program or code change has not adversely affected existing features.
- Regression testing is nothing but a full or partial selection of already executed test cases that are re-executed to ensure existing functionalities work fine.
- This testing is done to make sure that new code changes should not have side effects on the existing functionalities. It ensures that the old code still works once the new code changes are done.

The purpose of regression testing is to select test cases partially or fully to ensure existing functionalities work fine. Thus, regression testing is primarily related to functional testing

Need of Regression Testing

- Regression Testing is required when there is a change in requirements and code is modified according to the requirement or when one of the following has been done.
  - New feature is added to the software
  - Defect fixing
  - Performance issue fix

A Company has a choice of two languages L_1 and L_2 to develop a software for their client. Number of LOC required to develop an application in L_2, is thrice the LOC in language L_1. Also, software has to be maintained for next 10 years. Various parameters for two languages. are given below to decide which language should be preferred for development.

PARAMETER	L_1	L_2
Man-year needed for development	LOC/1000	LOC/1000

Development cost	Rs. 70,000	Rs. 90,000
Cost of Maintenance per year	Rs. 1,00,000	Rs. 40,000

Total cost of project include cost of development and maintenance. What is the LOC for L_1 for which cost of developing the software with both languages must be same ?

1. 2000

2. 6000

3. 3000

4. 5000

Answer (Detailed Solution Below)

Option 3 : 3000

Software Engineering Question 12 Detailed Solution

The correct answer is **option 3**

Formula:

The total cost of the project = Total development cost + Total maintenance cost

Calculation:

Let p1 be the LOC using L1 and p2 be the LOC using L2.

Total cost of the project using L1 = (p1/1000) x 70,000 + (10 x 1,00,000) = 70p1 + 10,00,000

Total cost of the project using L2 = (p2/1000) x 90,000 + (10 x 40,000) = 90p2 + 4,00,000

Given that p2 = 3xp1

=>70p1 + 10,00,000 = 90p2 + 4,00,000

=>70p1 + 10,00,000 = 270p1 + 4,00,000

=> 200p1 = 6,00,000

=> p1 = 3000

Question 13

What is the availability of the software with following reliability figures

Mean Time Between Failure (MTBF) is 20 days

Mean Time To Repair (MTTR) is 20 hours

1. 90%

2. 96%

3. 24%

4. 50%

Answer (Detailed Solution Below)

Option 2 : 96%

Software Engineering Question 13 Detailed Solution

Explanation:

- Mean time between failures is the average time between failures and not the average time something works then fails.
  - Mean time between failure (MTBF) = $\dfrac{total\ uptime}{number\ of\ breakdowns}$
- Mean time to repair is the average time taken to repair something.
  - Mean time to repair (MTTR) = $\dfrac{total\ downtime}{number\ of\ breakdowns}$

Availability = $\dfrac{total\ uptime}{(total\ uptime + total\ downtime)}$

$$= \frac{MTBF}{(MTBF+MTTR)} \times 100 \quad \backslash\backslash percentage$$

$$= \frac{20*24}{(20*24+20)} \times 100$$

$$= 0.96 \times 100 = 96\%$$

Important Point:

In MTBF, we converted 20 days into hours = 20 × 24 hours.

Question 14

The lower degree of cohesion is kind of

1. Logical Cohesion

2. Coincidental Cohesion

3. Procedural Cohesion

4. Communicational Cohesion

Answer (Detailed Solution Below)

Option 2 : Coincidental Cohesion

Software Engineering Question 14 Detailed Solution

Cohesion is like a type of ranking which is used to measure the degree of modules are functionally related

The degree of Cohesion can be defined as

Functional		
Sequential		
Communicational		
Procedural		
Temporal		
Logical		
Coincidental		

Degree of Cohesion

Important Information

- **Coincidental cohesion** is when parts of a module are grouped arbitrarily
- **Logical cohesion** is when parts of a module are grouped because they are logically categorized
- **Temporal cohesion** is when parts of a module are grouped by when they are processed
- **Procedural cohesion** is when parts of a module are grouped because they always follow a certain sequence of execution
- **Communicational cohesion** if all functions of the module refer to or update the same data structure.
- **Sequential cohesion** is when parts of a module are grouped because the output from one part is the input to another part like an assembly line
- **Functional cohesion** is when parts of a module are grouped because they all contribute to a single well-defined task of the module

Question 15

Match the following:

(1)	Waterfall model	(a)	Specifications can be developed incrementally

			incrementally
(2)	Evolutionary model	(b)	Re-usability in development
(3)	Component-based software engineering	(c)	Explicit recognition of risk
(4)	Spiral development	(d)	Inflexible partitioning of the project into stages

1. (1) - (a), (2) - (b), (3) - (c), (4) - (d)

2. (1) - (d), (2) - (a), (3) - (b), (4) - (c)

3. (1) - (d), (2) - (b), (3) - (a), (4) - (c)

4. (1) - (c), (2) - (a), (3) - (b), (4) - (d)

Answer (Detailed Solution Below)

Option 2 : (1) - (d), (2) - (a), (3) - (b), (4) - (c)

Software Engineering Question 15 Detailed Solution

The correct answer is **option 2**

🔑 Key Points

Waterfall model --> Inflexible partitioning of the project into stages

Evolutionary model --> Specifications can be developed incrementally

Component-based software engineering --> Re-usability in development

Spiral development --> Explicit recognition of risk