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SE. Notes

Question -1 WHAT Is Software Engineering

Software Engineering is a branch of Engineering OR the Detailed Study of Engineering under which we study about Designing, developing & Maintain of Software which we Run on our Computers or in electronic devices

These Software are developed by using well defined Scientific principles, Methods, procedures & Algorithms

IMPACT OF Software Engineering

Software Engineering is important because specific Software is needed in almost Every industry, in every business, and for every function. Its become more important as time goes on Because almost Every Country or Industry wanted to become on Number 1 Position in terms of Digitalization

Question -2 What are the responsibilities of a Software Project Manager?

A Software Project Manager is the Most important person inside a team who takes the overall responsibilities of Manage the Software Project and Play an important Role in the Successful Completion of Project

A Project Manager is the Person who have to face many difficulties situation to accomplish these work

PLANNING, LEADING, EXECUTING, TIME MANAGEMENT, BUDGET MAINTAINANCE

Question - 3 LIST the essential activities of Software Project Planning

Project Planning involves estimating several characteristics of a Project. It is like a blueprint for the Entire Project. It will define the Scope, allocate necessary resources, determines the Plan for Execution.

Essential Activities of Software Project Planning

- Project Estimation
- Cost Estimation
- TIME ESTIMATION
- EFFORT ESTIMATION
- Scheduling
- STAFFING
- RISK MANAGEMENT

Question - 4 Write three Essential Activity used for RISK MANAGEMENT

The Main Purpose of Risk Management is to identify and manage the risk associated with a Software Project and Solve the Problem Identifying and Preparing plans to reduce their impact on the Project is Called Risk Management

The Risk can be categorised As.

- 1 Project Risk - These are the Risk which affect the Project Schedule or resource
- 2 Product Risk - These are the risk which affects the quality or Performance of the being developed
- 3 Business Risks: These are the risk which affect the organization developing or procuring the Software

Question 5 What is bad SRS Document

SRS document is an organised information Gathering Documentation

- Actions of function do not actually achieve Safe state
- Measurement too slow to pick-up and Prevent Accident
- Not defining all Environment Condition
- Not defining all operating regimes, start-up shut-down

Question 6 Define the Term Coupling and Cohesion

Coupling describes the relationship between modules describes the relationship within them

Coupling is a measure that defines the level of inter-dependability among the Modules of a Program

There are five Level of Coupling

- Content Coupling
- Common Coupling
- Control Coupling
- Stamp Coupling
- DATA Coupling

Cohesion - Cohesion is a measure that defines the degree of intra-dependability within ELEMENT of a Module

There are 7 type of Cohesion

- Logical cohesion
- Emporal Cohesion
- Procedural Cohesion
- Communication Cohesion
- Sequential Cohesion
- Functional Cohesion

Question 7 Write about TESTING

Software testing can be stated as the process of verifying and validating that software or application is bug free, meets the technical requirements as guided by its design and development, and meet the user requirement effectively and efficiently with handling all the exceptional and boundary cases.

List different debugging approaches

Question 8 What are the different ways of gathering Information

Information Gathering describes how tasks are performed under specific circumstances. A task may have none or one or more related technique

SOME of following ways

Document Analysis

In this Idea or technique we would Reviewing the requirement that drove creation of the existing System

Interface Analysis

Interface for a Software Product Can be human or machine

Prototyping

Prototyping is a relatively Modern technique for Gathering info or requirement

Quesiton 9 Explain the following Software Life Cycle MODEL:

(a) Prototype MODEL

Prototype Model is one of the Life Cycle Model which is more useful to handle the Customer requirement or change Request

The Concept behind the model is, before going to the actual and final development of Software

Once the Customer approves the Prototype, the actual or approved System will goes forward to develop further

This model is most useful in the design of GUI part and is also useful to handle the technical Risk.

Iterative water fall model

In Iterative Model you can start with some of the Software Specification and development the first version of Software, After the first version if there is need to change the Software, then a new version of Software is Created with a new iteration

It Consist of

- 1 Requirement gathering
- 2 Design
- 3 Implementation
- 4 Testing
- 5 Deployment
- 6 Review
- 7 Maintenance

Question 10 Explain about Gantt chart and PERT chart

Gantt chart

Generalized Activity Normalization Time TABLE (GANTT) chart is type of chart in which series of horizontal lines are present that show the amount of work done or Production Completed in given Period of time in relation to amount Planned for those Project.

Gantt chart is also known as timeline chart.

PERT chart

Project Evaluation and Review Technique (PERT) chart is a procedure through which activities of a Project are represented in its appropriate Sequence and timing. Planning or PERT is basically a mechanism for management Planning and Control which Provide blueprint for a Particular Project.

Question 11 Explain about Functional requirements.

Functional Requirement: These are the requirement that the end user specifically demand as basic facility that the System should offer. All the functionality need to be necessarily incorporate into the System as a part of Contract.

Question -12 List the type of user interface. Explain about Command.

User Interface [UI] defines the way humans interact with the information system

User Interface is a series of Page, Screens, buttons, form and other visual elements that are used to interact with the device.

Every APP and website having a User Interface

There are 3 type of Interface —

1 GUI - Graphical User Interface

2 CUI - Command Line Interface

3 MENU BASED INTERFACE

COMMAND LINE INTERFACE

The Command line interface [CLI] is a non graphical, text based interface to the Computer System, where the user types in a Command and after the Command executes.

The CLI terminal accept the Commands that the user types and passes to a shell

MENU BASED INTERFACE

The menu-driven interface employs a series of screen or "menus". When a user makes a selection by tapping/clicking on the next menu screen until they complete the desired outcome.

An example is the setting menu on your phone. All you can do is scroll the menu and tap items; no other interaction is available. According, it is used in application with a familiar, limited, and uniform set of functions. You could put them all under subheading like "Camera Setting", "Display Setting" etc.

Advantage

- Handy for computer beginners and novice user
- Low cognitive load on user
- Familiar interface across different platform
- More control over user interaction
- Simple to implement in various kind of device

Question 13 Explain about Coding Standards and Guidelines

General Coding standard refers to how the developer writes code

Some of Coding standards are -

Indentation

Inline Comment

Structured Programming

Error Return Conventions

Coding Guidelines

General Coding guideline Provide the Programmer with a set of the best methods which can be used to make Program more comfortable to read and maintain. Most of the example use the language Syntax, but the guidelines can be tested to all language

Question 14 Write about the following two approaches of Software design:

- (a) Function-oriented design
- (b) Object-oriented design

In function-oriented design, the system comprises of many smaller sub-system known as functions. These function are capable of performing significant task in the system. The system is considered as top view of all function.

function oriented design inherits some properties of structured design where divide and conquer methodology is used.

Object Oriented Design (OOD) works around the Entity and their characteristics instead of function involved in the software system. The design strategies focuses on Entity and its characteristics. The whole concept of software solution revolve around the engaged entities.

It consists of

- object
- class
- Encapsulation
- Inheritance
- Polymorphism

Quesiton is Explain about the three Project estimation techniques

The Three Project Estimation Techniques

- Empirical Estimation technique
- Heuristic Techniques
- Analytical Estimation Technique

Empirical Estimation Technology

This technology based on making an educated guess of the Project Parameter. while using this technology Prior Experiences with development of Similar Project is helpful

Heuristic technology

Heuristic technology assume that the relationship among the different Project Parameter can be modeled using Suitable Mathematic Expression

Analytics Estimation techniques

Analytic Estimation techniques derive a result starting with basic assumption regarding the Project, Thus Empirical and heuristic technology

Debugging

Question 16 What is Software Approaches

Debugging is the Process of finding and resolving defects or Problem within a Computer Program that Prevent Correct operation of Computer Software or a System

Need of debugging

Once errors are known during a Program Code, it's necessary to initial establish the Precise Program statement liable for the error and so to repair them

Question 17 What is Software testing [Static Testing]

Static Testing is a type of a Software Testing method which is Performed to check the defect in Software without actually executing the Code of the Software Application

Static testing is Performed in early stage of development to avoid errors as its is easier to find source of failure and it can be fixed Easily

Question 18 Explain Software Quality Management

Software Quality Management ensures that the required level of quality is achieved by Submitting improvement to the Product development Process.

→ P.T.O.

Software quality. Management should be independent of Project management to ensure independent of Cost and schedule adherence. It directly affects the Process Quality and indirectly affects the Product quality.