

# Question Paper

Exam Date & Time: 01-Jun-2021 (10:00 AM - 01:45 PM)



CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

## Sixth Semester of B. Tech IT Examination 2021

### Instructions:

1. The question paper comprises two sections (I-MCQ-30 Marks & II-Descriptive-40 Marks).
2. Make suitable assumptions and draw neat figures wherever required.

SOFTWARE ENGINEERING [IT347]

Marks: 70

Duration: 225 mins.

### MCQ

Answer all the questions.

1    \_\_\_\_\_ combines the tools and procedure to manage different versions of configuration objects (1) that are created during the software process.

[Version Control](#) [Change Control](#) [Configuration status reporting](#). [None](#)

2    Independent modules are easier to test and maintain because of \_\_\_\_\_ (1)  
[Code modification is limited](#) [Error propagation is reduced](#) [Reusable modules are possible](#) [All of the above](#)

3    Inspections and testing are what kinds of Quality Costs? (1)  
[Prevention](#) [Internal Failure](#) [External Failure](#) [Appraisal](#)

4    \_\_\_\_\_ is used for structured designing. (1)  
[Program flowchart](#) [Structure chart](#) [Data-flow diagram](#) [Module](#)

5    \_\_\_\_\_ is a reuse-based approach to defining, implementing, and composing loosely coupled independent components into systems (1)  
[Component-based software engineering](#) [Component composition](#) [Component model](#) [Component interfaces](#)

6    The spiral model has two dimensions namely \_\_\_\_\_ and \_\_\_\_\_ ? (1)  
[diagonal, angular](#) [radial, perpendicular](#) [radial, angular](#) [diagonal, perpendicular](#)

7    Which of the following is not a diagram studied in Requirement Analysis ? (1)  
[Use Cases Diagram](#) [Entity Relationship Diagram](#) [State Transition Diagram](#) [Activity Diagram](#)

8    \_\_\_\_\_ is the best type of module cohesion. (1)  
[Functional Cohesion](#) [Temporal Cohesion](#) [None](#) [Sequential Cohesion](#)

9

Which of the mentioned option is True?

Generic products and  
customized products are not  
types of software products

Generic products are not  
produced by organization and  
sold to open market.

Customized products are  
commissioned by  
particular customer.

(1)

10

Which among the mentioned options is considered as an adjunct to the coding step

Integration  
testing

Regression  
Testing

Completion of  
Testing

Unit  
testing

(1)

11

Software quality assurance is not an umbrella activity.

(1)

True False

12

To measure the quality, which requirement serve as a foundation for the same ?

(1)

Software Programmers Hardware None

13

The focus of the data of Reverse engineering is mainly on:

(1)

Internal data  
structures

Database structures ALL of the mentioned None of the mentioned

14

The administration of Software Configuration Management can be carried out in many ways which include:

(1)

A separate  
configuration  
management team for  
each project

Software Configuration  
Management distributed  
among the project members

A single software configuration  
management team for the  
whole organization

All of the  
mentioned

15

Which of the following is not one of the five design class types?

(1)

User interface classes Process classes Business domain  
classes Entity classes

16

\_\_\_\_\_ is not a business risk.

(1)

building an excellent  
product or system that  
no one really wants

losing the support of senior  
management due to a change in  
focus or change in people

lack of documented  
requirements or  
software scope

losing budgetary  
or personnel  
commitment

17

The throwaway prototype differs from evolutionary prototype:-

(1)

It involves  
successive  
steps.  
It involves  
just one  
task.

The prototype is built with the idea that it will  
eventually be converted into final system.

It has a shorter  
development time.

18

Interaction Diagram is a combined term for:

(1)

Sequence Diagram +  
Collaboration Diagram

Activity Diagram + State  
Chart Diagram

Deployment Diagram +  
Collaboration Diagram

None

19

Which among the mentioned options is/are not an objective of reverse engineering? (1)

- to reduce maintenance   to cope with   to avoid side   to assist migration to a CASE  
effort   complexity   effects   environment

20

Who will test the system in agile development? (1)

- Software Tester   Developer   Business Analyst   All the above

21

\_\_\_\_\_ is the first step in project planning (1)

- Determine the budget.   Select a team organizational model.   Determine the project constraints.   Establish the objectives and scope.

22

Which of the following objectives are not the one that the software designing phase claim to offer? (i) Identify software design activities (ii) Identify important items developed during the software design phase (iii) To improve the designing skills of the developers (1)

- Only i and iii are correct   Only i and ii are correct   None of the given options is correct   All i, ii and iii are correct

23

As a lead developer of a software company, a product/project is to be submitted in a stipulated time-frame without cost barriers. Which model is the most appropriate to choose? (1)

- Waterfall   Spiral   RAD   Incremental

24

In a software process, the prototyping may involve \_\_\_\_\_ (1)

- Throw - away prototyping   Evolutionary   Both a and b options   None

25

Which of the following is the understanding of software product limitations, learning system related problems or changes to be done in existing systems beforehand, identifying and addressing the impact of project on organization and personnel etc? (1)

- System Analysis   Requirement Gathering   Software Design   Feasibility Study

26

What DFD notation is represented by the Rectangle? (1)

- Transform   Data Store   Function   None

27

In COCOMO terminology a project with software being strongly coupled to complex hardware & stringent regulations on operating procedures is categorised as (1)

- Organic   Semidetached   Embedded   Application

28

If P is risk probability, L is loss, then Risk Exposure (RE) is computed as (1)

$$\begin{array}{ll} \text{RE} = P/L & \text{RE} = P + L \\ \text{P*L} & *L \end{array}$$

29

\_\_\_\_\_ is not a phase of "bathtub curve" of hardware reliability? (1)

- Useful Life   Wear-out   Time   Burn-in

30

Choose the correct option according to the given statement. Statement 1: Software is a physical (1) rather than a logical system element. Statement 2: Computer software is the product that software engineers design and build Statement 3: Software is a logical rather than a physical system element. Statement 4: Software is a set of application programs that are built by software engineers.

[Statement 1 and 2 are correct.](#)

[Only Statement 2 and 3 are correct.](#)

[Statement 2 and 3 and 4 are correct.](#)

[All statements are correct](#)

### Descriptive

**Answer 8 out of 12 questions.**

31

Explain with the help of examples, the type of problems for which you would adopt the waterfall model of software development, and the type of problems for which you would adopt the spiral model. (5)

32

Define the roles in Scrum? Explain Agile software development process in detail. (5)

Differentiate between Scrum and Kanban.

33

Assume that the size of Semidetached & Embedded type of software product has been estimated (5) to 1024 KLOC determine the following:

- i. Estimated Effort
- ii. Development Time
- iii. Average staff size
- iv. Productivity of the project

34

Distinguish between error and failure in terms of Software Defect? Which of the two is detected (5) by Software testing? Justify your answer. Is it possible to test the software exhaustively? Justify your answer. Can anyone guarantee that the product delivered is 100% error free even after thorough testing?

35

Define "requirement engineering". How does the domain knowledge help in requirement (5) analysis? Why is it difficult to gain a clear understanding of what the customer wants?

36

What is Software Architecture? Why is architecture Important? List out different types of (5) Architectural Styles. Explain any two in detail.

37

The University consists of institutes. Institutes consists of departments. Departments are located (5) at one or more places. One building acts as headquarter. Each department has as one administrative person who enrol the required resource person to the department. Draw a class diagram which consists of all the classes in your system their attributes, operations, relationship between the classes, multiplicity and minimum 5 classes are required in the diagram.

38

Differentiate between Black-Box and White-Box testing. Briefly describe any one (5) method.

39

An organization is assessed at Level 4 of SEI CMM, what can be inferred about the current (5) quality practices at the organization? What does the organization have to do to reach SEI CMM Level 4?

40   What do you mean by Software Configuration Management (SCM)? Why do we need configuration management? (5)

41   What do you mean by CASE? List out the benefits of CASE and CASE tools. (5)

42   What is a risk? What are the risk management activities? What types of risks are likely to encounter as software & hardware are built? (5)

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