| Reg. No. | | | | | | | | | | | | | | | |
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**B.Tech DEGREE EXAMINATION, DECEMBER 2024**

Fourth Semester

18CSC206J - SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

*(For the candidates admitted from the academic year2018-2019 to 2021-2022)*

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

**PART - A (20 x 1 = 20 Marks)**

Answer **ALL** Questions

| | | Marks | BL | CO | PO |
|---|---|---|---|---|---|
| 1. | Choose the major advantage of using incremental model<br>A) Customer can respond to each increment<br>B) Easier to test and debug<br>C) It is used when there is a need to get a product to the market early<br>D) Easier to test and debug & It is used when there is a need to get a product to the market early | 1 | 1 | 1 | 1 |
| 2. | Which models address the behavioral aspects of the program architecture, indicating how the structure or system configuration may change as a function of external events?<br>A) Structural models<br>B) Framework models<br>C) Dynamic models<br>D) Process models | 1 | 1 | 1 | 1 |
| 3. | What factors does COCOMO consider when estimating software development costs?<br>A) Project size, team experience, hardware constraints<br>B) Project timeline, team size, software tools<br>C) Project budget, team skills, software requirements<br>D) Project timeline, team skills, Hardware requirements | 1 | 1 | 1 | 1 |
| 4. | How do you create agile processes to manage unpredictability?<br>A) Requirements gathering must be conducted very carefully<br>B) Risk analysis must be conducted before planning takes place<br>C) Software increments must be delivered in short time periods<br>D) Software processes does not adapt to changes incrementally | 1 | 2 | 1 | 1 |
| 5. | A traditional component, also called a module, resides within the ____.<br>A) Software architecture<br>B) Software testing<br>C) Software debugging<br>D) Software system | 1 | 1 | 2 | 1 |
| 6. | Software systems are supported by a design that provides a sound, fault-tolerant, and _____ structure.<br>A) Synchronous<br>B) Scalable<br>C) Incremental<br>D) Rigid | 1 | 2 | 2 | 3 |
| 7. | Many classes together build_____<br>A) Modules<br>B) Packages<br>C) Component<br>D) Function | 1 | 1 | 2 | 1 |

8. Consider the following example, and classify it in the appropriate way: "A pattern-matching system that was built as part of a text-processing system may be utilized in a database management system." 1 2 2 2

A) Application system reuse
B) Component reuse
C) Object and function reuse
D) Product reuse

9. What is the primary advantage of using a framework for desktop application development? 1 1 3 2

A) It allows for more customization in software development.
B) It simplifies the development process by providing pre-built components and functionality.
C) It improves the performance of software applications.
D) It provides a consistent user interface across different platforms.

10. If the logic of the problem is perfect based on test case, only then developers write the source code, hence this method of development is appropriately named as _____ 1 2 3 3

A) Code Reuse
B) Configuration Management
C) Test-driven development
D) Software as a Service

11. 'To address needs of different sized software products in tandem with advancement in computer science, different programming techniques evolved' – which of the following is not one such technique? 1 2 3 4

A) Pseudocode approach
B) Object-oriented approach
C) Automatic code generation
D) Pair programming approach

12. _____ is the quality-driven development technique employed in extreme Programming. 1 2 3 3

A) Structured programming
B) Object-oriented programming
C) Automatic code generation
D) Pair programming

13. To test the application under test, what must be prepared to match an environment that is close to the environment under which the proposed application will be deployed for production? 1 1 4 2

A) Test plan
B) Test Execution plan
C) Test bed
D) Test case

14. Which is not true in case of Unit Testing? 1 2 4 3

A) It decreases the software development speed.
B) It can't be expected to catch every error in a program.
C) In this tester evaluates if individual units of source code are fit for use.
D) It is usually conducted by the development team.

15. Which granularity level of testing checks the behavior of module cooperation? 1 2 4 3

A) Unit Testing
B) Integration Testing
C) Acceptance Testing
D) Regression Testing

16. What is the main purpose of software test planning? 1 2 4 3

A) To ensure that all requirements have been met
B) To identify all potential defects in the software
C) To allocate appropriate resources and define testing activities
D) To determine the best test approach for the software

17. The maintenance phase when there are significant changes in the software is 1 2 5 3

A) Evolution
B) Service
C) Phase-out
D) Development

18. A pre-release of software that is given out to a large group of users to try under real conditions — 1 2 5 1

A) Alpha Release B) Beta Release
C) Internal Release D) External Release

19. _____ maintenance on the software product can make sure that the product will be useful even after these environmental changes occur. — 1 2 5 1

A) Corrective B) Adaptive
C) Perfective D) External Release

20. Which team will be performing the user acceptance testing when there are no immediate customers who are usually available for doing user acceptance testing? — 1 2 5 3

A) Internal Testing B) Development
C) Marketing D) External Testing

**PART - B (5 x 4 = 20 Marks)** — Marks BL CO PO
Answer **ANY FIVE** Questions

21 A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the Effort, development time, average staff size, and productivity of the project — 4 2 1 2

22 Differentiate between iterative Enhancement Model and Evolutionary Development model. — 4 2 1 2

23 Compare and contrast Coupling and Cohesion. — 4 1 2 2

24 List the Interface design principles in detail. — 4 1 2 1

25 Compare and contrast the top-down and bottom-up approaches in software development, highlighting their advantages and disadvantages. — 4 3 3 3

26 Discuss on Verification and Validation. — 4 1 4 3

27 Categorize the types of product release. Before release there are certain tasks to be completed enumerate the same with detailed description — 4 1 5 9

**PART - C (5 x 12 = 60 Marks)** — Marks BL CO PO
Answer **ALL** the Questions

28 a. Consider a Stream application is to be created to give a seamless listening, managing and syncing cloud music experience. It should allow the users to create a personal streaming service with cloud storage like Box, Dropbox, Google Drive, OneDrive and Yandex.Disk to save space on the user device and have access to all of the user music. Suppose you are a developer and have to choose a software model to develop the application — 12 3 1 1

**(OR)**

b. The gaming industry strongly relies on the initial versions of games created to have a kickstart and then adapt to the feedback from various perspectives. Also, if the industry requires a proper risk valuation, choose and explain a model that suits this scenario. List the advantages and disadvantages. — 12 3 1 2

29 a. (i) Draw UML use case diagram to describe major services provided by a hospital reception (6 marks) — 12 3 2 3

(ii) Suppose you are given the following requirements for a simple database for the National Hockey League (NHL)(6 marks)

**(OR)**

b. (i) Demonstrate in detail Architectural design. (6 marks) — 12 3 2 3

(ii) Illustrate in detail any three architectural styles. (6 marks)

| | | | | | |
|---|---|---|---|---|---|
| 30 a. | (i) How to ensure the reusability of code in a software project? Justify. (6 marks) | 12 | 2 | 3 | 3 |
| | (ii) Discuss a structured programming method with real-time example (6marks) | | | | |
| | **(OR)** | | | | |
| b. | Describe the impact of code review and inspection on software quality and development productivity in detail. | 12 | 2 | 3 | 5 |
| 31 a. | As a software tester, you have been asked to validate a software release for a client. Explain the various types of validation techniques that you would apply to ensure that the software release meets the client's requirements. | 12 | 3 | 4 | 3 |
| | **(OR)** | | | | |
| b. | You have been tasked with validating the compatibility of a software application across multiple platforms and devices Describe the steps you would take to ensure that the application works seamlessly across different platforms and devices. | 12 | 3 | 4 | 3 |
| 32 a. | Mention the need for four different types of maintenance activities. With an illustration, highlight about perfective and preventive activities. | 12 | 3 | 5 | 11 |
| | **(OR)** | | | | |
| b. | The product that has been developed and thoroughly tested now needs to be implemented at a customer site. Describe the steps to be carried out during the process. | 12 | 2 | 5 | 5 |

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