Reg. No.														

B.Tech. DEGREE EXAMINATION, NOVEMBER 2023
Sixth Semester

18CSE466T – SOFTWARE VERIFICATION AND VALIDATION
(For the candidates admitted from the academic year 2020-2021 & 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 × 1 = 20 Marks)
Answer ALL Questions

		Marks	BL	CO	PO

1. Poor upstream activities and poor testing says _____ about the effectiveness of testing.   *(1 1 1 1)*
   - (A) Ideal state
   - (B) Not sustainable
   - (C) Risky
   - (D) High rework cost

2. Which of the following characterizes the cost of faults?   *(1 2 1 1)*
   - (A) They are easiest to find during system testing but the most expensive to fix them
   - (B) They are cheapest to find in the early development phases and most expensive to fix in latest test places
   - (C) Faults are cheapest to find in the early development phases but most cheaper to fix them
   - (D) Faults are expensive

3. This condition should be true when a software components completes its operation properly   *(1 1 1 1)*
   - (A) Precondition
   - (B) Post condition
   - (C) Declaration
   - (D) Comment

4. Lack of error checks for incorrect / invalid inputs fall under   *(1 2 1 1)*
   - (A) Data defects
   - (B) Logic defects
   - (C) Algorithm defects
   - (D) Data flow defects

5. White box testing are also classified as   *(1 1 3 3)*
   - (A) Design testing
   - (B) Structural testing
   - (C) Error guessing testing
   - (D) Confirmation testing

6. Exhaustive testing is   *(1 1 3 3)*
   - (A) Always possible
   - (B) Practically possible
   - (C) Impractical but possible
   - (D) Impractical and impossible

7. Which among the following is not a part of software testing life cycle?   *(1 1 2 2)*
   - (A) Testing planning
   - (B) Requirement gathering
   - (C) Test design
   - (D) Test closure

8. The key objective of integration testing   1 2 3 3
   (A) Design errors   (B) Interface errors
   (C) Procedure errors   (D) Risks

9. To validate whether the system is confirming with its business requirement   1 1 3 3
   is
   (A) Functional testing   (B) Non functional testing
   (C) Verification   (D) Validation

10. Reviews, walkthroughs and inspections are part of   1 2 2 2
    (A) Design process   (B) Validation process
    (C) Verification process   (D) Debugging process

11. Alpha testing is _____.   1 1 4 4
    (A) A type of acceptance testing   (B) Type of unit testing done by
         done by end users in the live   developer
         environment
    (C) Type of acceptance testing done (D) Type of system testing done by
         by developers in developers   testers
         environment

12. Which one of the following is true for unit testing?   1 1 4 4
    (A) It is validation of interfacing (B) It is validation of unit
         between the unit components   components done by tester in
                                               the testing environment
    (C) It is the validation of unit (D) It is a type of validation during
         components, done by developer   interfacing
         in development environment

13. Scope management in testing does not pertains to   1 1 5 5
    (A) Understanding what constitutes (B) Deciding the type of testing
         a release a product
    (C) Features to be tested   (D) Features not to be tested

14. The auxiliary code developed to support testing of units and components is 1 1 5 5
    called
    (A) Testing techniques   (B) Testing strategies
    (C) Test Harness   (D) Test attachments

15. _____ reduces helpdesk calls by 5% over the next 2 years   1 1 4 4
    (A) Business goal   (B) Technical goal
    (C) Business/ technical goal   (D) Political goal

16. Alpha and beta testing are forms of   1 2 4 4
    (A) White box testing   (B) Black box testing
    (C) Acceptance testing   (D) System testing

17. Which of the following statements is/are false with respect to software   1 2 4 4
    testing?
    S1: White box tests are based on specifications
    S2: Black box tests are based on code
    S3: Alpha testing is conducted at developers site
    (A) Only S1 and S2 are false   (B) Only S1 and S3 are false

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(C) Only S2 and S3 are false   (D) All of S1, S2 and S3 are false

18. Give the normal order of activities in which traditional software testing is organized?

    (i) Integration   (ii) System   (iii) Unit   (iv) Validation

    (A) (iii), (i), (ii), (iv)   (B) (iii), (i), (iv), (ii)

    (C) (iv), (ii, (ii), (i)   (D) (ii), (iv), (i), (iii)

19. Which of the following testing techniques ensures that the software product runs correctly after the changes during maintenance?

    (A) Path testing   (B) Integration testing

    (C) Unit testing   (D) Regression testing

20. The term failure refers to

    (A) A human action that produces an incorrect result   (B) Its departure from specified behaviour

    (C) Found in the software, the result of an error   (D) It is procedure or data definition in a computer database

PART – B (5 × 4 = 20 Marks)
Answer ANY FIVE Questions

	Marks	BL	CO	PO

21. Sales representative / engineer: "This car has best possible transmission and brake, and accelerates from 0 to 80 mph in under 20 seconds" customers: "Well, that may be true, but unfortunately it accelerates (even faster) when I press the brake pedal".

    Which testing principle justify the above act of conversation. List out any five principles of testing.   4   3   1   1

22. Using the version of V model, describe the test related activities that should be done and why they should be done.   4   2   1   1

23. Software components have defects no matter how well out defect prevention activities are implemented. List out the characteristics of a smart tester.   4   2   2   2

24. Categorize the types of black box testing techniques.   4   2   3   3

25. A unit is the smallest possible testable software component. How is it characterized and list the type of components suitable for unit test?   4   2   3   3

26. Outline the essential high level items of a test plan.   4   2   5   5

27. List out the challenges of test automation.   4   2   5   5

PART – C (5 × 12 = 60 Marks)
Answer ALL Questions

	Marks	BL	CO	PO

28. a. Consider you are testing the academia platform for choosing the electives develop adhoc test cases for the same.   12   3   1   1

(OR)

b. Categorize the defect classes and defect repository and describe in detail.   12   2   1   1

29. a. Suppose we are testing a module that allows a user to enter new widget data base. Our aim is to select equivalence class and boundary values for inputs. The input specification for the module states that a widget identifier should consist of 3-15 alphanumeric characters of which the first 2 must be letters. We have three separate conditions that apply to the input.   12   3   3   3
   - (i) It must consist of alphanumeric
   - (ii) Range for the total number of character is between 3 and 15
   - (iii) The first two characters must be letters

(OR)

b. pos_sum (a, num_of entries, sum)   12   3   3   3

```
    sum = 0
    int i = 1
    while (i< = num_of_entries)
        if a [i] > 0
            sum = sum + a[i]
        end if
        i = i + 1
    end while
end pos_sum
```

The above program finds the sum of all positive numbers. Draw control flow graph and derive test cases that satisfy the decision coverage criterion.

30. a. Testing can be considered as a project on its own, it has to be planned, executed, tracked and periodically reported on describe in detail the aspects of test planning.   12   2   2   2

(OR)

b. Compare and contrast project metrics, progress metrics and productivity metrics.   12   2   2   2

31. a. With respect to integration testing   2   2   2
   - (i) List out the goals   2
   - (ii) Strategies for procedures and functions   5
   - (iii) The test planning   5

(OR)

b. Categorize the types of system testing.   12   2   2   2

32. a. With the help of an architecture diagram, enumerate the requirement for an automation testing tool, skills required and the procedure for selecting the right tool.   12   2   5   5

(OR)

b. With an example demonstrate any functional testing tool.   12   2   5   5

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