



**Maratha Vidya Prasarak Samaj's**

**Rajarshi Shahu Maharaj Polytechnic, Nashik**

**Udoji Maratha Boarding Campus, Near Pumping Station, Gangapur Road, Nashik-13.**

**Affiliated to MSBTE Mumbai, Approved by AICTE New Delhi, DTE Mumbai & Govt. of Maharashtra, Mumbai.**

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*Subject: SOFTWARE TESTING  
(22518)*



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# SYLLABUS

Chapter No.	Name of chapter	Marks With Option	Marks Without Option (Final Exam)
1	Basics of software testing and testing methods	14	14
2	Types and Levels of Testing	20	18
3	Test Management	36	14
4	Defect Management	12	12
5	Testing tools and Measurements	20	12
Total Marks :-		102	70

## **BOARD THEORY PAPER PATTERN**

### **FOR STE( 22518)**

<b>Q.1</b>	<b>Attempt any FIVE</b>
a)	Basics of software testing and testing methods CO-518.1
b)	Basics of software testing and testing methods CO-518.1
c)	Basics of software testing and testing methods CO-518.1
d)	Types and Levels of Testing CO-518.2
e)	Test Management CO-518.3
f)	Defect Management CO-51.4
g)	Testing tools and Measurements CO-518.5
<b>Q.2</b>	<b>Attempt any THREE</b>
a)	Types and Levels of Testing CO-518.2
b)	Test Management CO-518.3
c)	Test Management CO-518.3
d)	Testing tools and Measurements CO-518.5
<b>Q.3</b>	<b>Attempt any THREE</b>
a)	Basics of software testing and testing methods CO-518.1
b)	Test Management CO-518.3
c)	Defect Management CO-518.4
d)	Testing tools and Measurements CO-518.5
<b>Q.4</b>	<b>Attempt any THREE</b>
a)	Basics of software testing and testing methods CO-518.1
b)	Types and Levels of Testing CO-518.2
c)	Types and Levels of Testing CO-518.2
d)	Test Management CO-518.3
e)	Testing tools and Measurements CO-518.5
<b>Q.5</b>	<b>Attempt any TWO</b>
a)	Types and Levels of Testing CO-518.2
b)	Test Management CO-518.3
c)	Testing tools and Measurements CO-518.5
<b>Q.6</b>	<b>Attempt any TWO</b>
a)	Test Management CO-518.3
b)	Test Management CO-518.3
c)	Defect Management CO-518.4

# CLASS TEST - I

## PAPER PATTERN

### Syllabus:-

Unit No.	Name of the Unit	Course Outcome (CO)
<b>1</b>	Basics of software testing and testing methods	<b>CO-518.01</b>
<b>2</b>	Types and Levels of Testing	<b>CO-518.02</b>

Q.1	Attempt any FOUR	4*2=08Marks	Course Outcome (CO)
a)	Basics of software testing and testing methods		CO-518.1
b)	Basics of software testing and testing methods		CO-518.1
c)	Basics of software testing and testing methods		CO-518.1
d)	Types and Levels of Testing		CO-518.2
e)	Types and Levels of Testing		CO-518.2
f)	Types and Levels of Testing		CO-518.2
Q.2	Attempt any THREE	3*4= 12Marks	
a)	Basics of software testing and testing methods		CO-518.1
b)	Types and Levels of Testing		CO-518.2
c)	Types and Levels of Testing		CO-518.2
d)	Types and Levels of Testing		CO-518.2
e)	Types and Levels of Testing		CO-518.2

# CLASS TEST - II

## PAPER PATTERN

### Syllabus:-

Unit No.	Name of the Unit	Course Outcome (CO)
<b>3</b>	Test Management	<b>CO-518.03</b>
<b>4</b>	Defect Management	<b>CO-518.04</b>
<b>5</b>	Testing tools and Measurements	<b>CO-518.05</b>

Q.1	Attempt any FOUR	4*2=08Marks	Course Outcome (CO)
a)	Test Management		CO-518.3
b)	Test Management		CO-518.3
c)	Defect Management		CO-518.4
d)	Defect Management		CO-518.4
e)	Testing tools and Measurements		CO-518.5
f)	Testing tools and Measurements		CO-518.5
Q.2	Attempt any THREE	3*4= 12Marks	
a)	Test Management		CO-518.3
b)	Test Management		CO-518.3
c)	Defect Management		CO-518.4
d)	Testing tools and Measurements		CO-518.5
e)	Testing tools and Measurements		CO-518.5



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# **COURSE OUTCOME (CO)**

**COURSE: - SOFTWARE TESTING (22518)**

<b>CO.NO</b>	<b>Course Outcome</b>
<b>CO-518.1</b>	Apply various software testing methods
<b>CO-518.2</b>	Prepare test cases for different types and levels of testing
<b>CO-518.3</b>	Prepare test plan for an application
<b>CO-518.4</b>	Identify bugs to create defect report of given application
<b>CO-518.5</b>	Test software for performance measures using automation testing tool



# 1. Basics of software testing and testing methods

Position in Question Paper

Total Marks-14

Q.1 a)2-Marks.

Q.1 b)2-Marks.

Q.1 c)2-Marks.

Q.3 a)4-Marks.

Q.4 a)4-Marks.

## Descriptive Question

- 1) Define software Quality assurance and quality control
- 2) State any four principles of good test case
- 3) Define the following term failure, error, defect, and bug
- 4) State process of Black box testing with labeled diagram? List any four techniques of black box testing.
- 5) State the testing approaches that are considered during Client- Server Testing
- 6) List the objectives of software testing.
- 7) Design any four boundary value test cases for textbox which accept numbers from 1- 999.
- 8) Define Static testing and dynamic testing.
- 9) Differentiate between Verification and Validation.
- 10) Principles of software testing
- 11) Define failure and fault with its result
- 12) Difference between QC and QA



## MCQ Question

(Total number of Question=Marks\*3=14\*3=42)

1. Which of the following term describes testing?
  - a) Finding broken code
  - b) Evaluating deliverable to find errors**
  - c) A stage of all projects
  - d) None of the mentioned
2. What is Cyclomatic complexity?
  - a) Black box testing
  - b) White box testing**
  - c) Yellow box testing
  - d) Green box testing
3.  $7n$  test cases are generated in which case of Boundary Value Analysis?
  - a) Worst case
  - b) Roust worst case**
  - c) Critical fault assumption
  - d) None of these
4. Which of the following is NOT true of test coverage criteria?
  - a) A measure of test coverage criteria is the percentage of user requirements covered.
  - b) Test coverage criteria can be measured in terms of items exercised by a test suite.
  - c) A measure of test coverage criteria is the percentage of faults found.**
  - d) Test coverage criteria are often used when specifying test completion criteria.
5. A tester is executing a test to evaluate and it complies with the user requirement for a certain field be populated by using a dropdown box containing a list of values, at that time tester is performing \_\_\_\_\_.
  - a) White-box Testing
  - b) Black-box Testing**
  - c) Load Testing
  - d) Regression Testing
6. A tester is executing a test to evaluate and it complies with the user requirement for a certain field be populated by using a dropdown box containing a list of values, at that time tester is performing \_\_\_\_\_.
  - a) White-box Testing
  - b) Black-box Testing**





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c) Load Testing

d) Regression Testing

7. The Switch is switched off once the temperature falls below 18 and then it is turned on when the temperature is more than 21. Identify the Equivalence values which belong to the same class.

a) 12, 16, 22

c) **22, 23, 24**

b) 24, 27, 17

d) 14, 15, 19

8. Given a flow graph with 10 nodes, 13 edges and one connected components, the number of regions and the number of predicate (decision) nodes in the flow graph will be

a) **4, 5**

c) **3, 1**

b) **5, 4**

d) **13, 8**

9. What is an equivalence partition (also known as an equivalence class)?

a) A set of test cases for testing classes of objects.

**b) An input or output range of values such that only one value in the range becomes a test case.**

c) An input or output range of values such that each value in the range becomes a test case.

d) An input or output range of values such that every tenth value in the range becomes a test case.

10. One of the fields on a form contains a text box which accepts numeric values in the range of 18 to 25.

Identify the invalid Equivalence class

a) **17**

c) 24

b) 19

d) 21

11. In an Examination a candidate has to score minimum of 24 marks in order to clear the exam. The maximum that he can score is 40 marks. Identify the Valid Equivalence values if the student clears the exam.

a) 22, 23, 26

c) **29, 30, 31**

b) 21, 39, 40

d) 0, 15, 22





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An employee has £4000 of salary tax free. The next £1500 is taxed at 10%. The next £28000 is taxed at 22%. Any further amount is taxed at 40%. Which of these groups of numbers would fall into the same equivalence class?

- a) £4800; £14000; £28000
- b) £5200; £5500; £28000
- c) £28001; £32000; £35000
- d) **£5800; £28000; £32000**

18. Order numbers on a stock control system can range between 10000 and 99999 inclusive. Which of the following inputs might be a result of designing tests for only valid equivalence classes and valid boundaries:

- a) 1000, 5000, 99999
- b) 9999, 50000, 100000
- c) **10000, 50000, 99999**
- d) 10000, 99999
- e) 9999, 10000, 50000, 99999, 100000

19. Equivalence partitioning is:

- a) A black box testing technique used only by developers
- b) A black box testing technique than can only be used during system testing
- c) **A black box testing technique appropriate to all levels of testing**
- d) A white box testing technique appropriate for component testing

20. Which of the following is a valid collection of equivalence classes for the following problem: An integer field shall contain values from and including 1 to and including 15

- a) **Less than 1, 1 through 15, more than 15**
- b) Negative numbers, 1 through 15, above 15
- c) Less than 1, 1 through 14, more than 15
- d) Less than 0, 1 through 14, 15 and more

21. Which of the following is a valid collection of equivalence classes for the following problem: Paying with credit cards shall be possible with Visa, Master and Amex cards only.

- a) Visa, Master, Amex;
- b) **Visa, Master, Amex, Diners, Keycards, and other option**



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c) Visa, Master, Amex, any other card, no card

**d) No card, other cards, any of Visa – Master – Amex**

22. Given the following specification, which of the following values for age are in the SAME equivalence partition? If you are less than 18, you are too young to be insured. Between 18 and 30 inclusive, you will receive a 20% discount. Anyone over 30 is not eligible for a discount.

a) 17, 18, 19.

**c) 18, 29, 30.**

b) 29, 30, 31.

d) 17, 29, 31.

23. One of the fields on a form contains a text box which accepts alphabets in lower or upper case. Identify the invalid Equivalence class value.

a) CLASS

c) Class

b) class

**d) CLa01ss**

24. Which of the following is not included in failure costs?

a) Rework

c) Failure mode analysis

b) Repair

**d) None of the mentioned**

25. Which requirements are the foundation from which quality is measured?

a) Hardware

c) Programmers

**b) Software**

d) None of the mentioned

26. Which of the following is not a SQA plan for a project?

a) Evaluations to be performed

**b) Amount of technical work**

c) Audits and reviews to be performed

d) Documents to be produced by the SQA group

27. Degree to which design specifications are followed in manufacturing the product is called

a) Quality Control

c) Quality Assurance

**b) Quality of conformance**

d) None of the mentioned

28. Which of the following is not an appraisal cost in SQA?



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- a) Inter-process inspection
- b) Maintenance
- c) **Quality planning**
- d) Testing

29. Quality Management in software engineering is also known as

- a) **SQA**
- b) SQM
- c) SQI
- d) SQA and SQM

30. According to ISO 9001, inspection and testing comes under which management responsibility?

- a) **Process control**
- b) Document control
- c) Control of nonconforming products
- d) Servicing



## **2. Types and Levels of Testing**

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**Position in Question Paper**

**Total Marks-20**

**Q.1. d)2-Marks.**

**Q.2. a)4-Marks.**

**Q.4. b)4-Marks.**

**Q.4. c)4-Marks.**

**Q.5. a)6-Marks.**

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### **Descriptive Question**

- 1) State any two example security testing
- 2) Differentiate between Driver and stubs
- 3) Describe the Integration Testing.
- 4) Explain following concepts related to Web Application: (1) Load testing (2) Stress testing.
- 5) With respect to GUI testing write the test cases for Amazon login form.
- 6) Describe the need of stub and driver in Unit testing?
- 7) Define Load testing and Stress testing.
- 8) Define Unit Testing?
- 9) Apply equivalence partitioning on application which display result on basis of percentage obtained in exam.
- 10) Explain Top Down integration testing.
- 11) With respect to GUI testing, write any four test cases for Flipchart login form.
- 12) Explain need of Regression Testing.
- 13) Define Integration testing and explain Bottom up approach
- 14) Difference between alpha and beta testing
- 15) Explain code coverage testing with cyclomatic complexity
- 16) Explain client server testing which type of testing is apply on client server application





17) State when the regression testing shall be done

## MCQ Question

(Total number of Question=Marks\*3=18\*3=54)

1. \_\_\_\_\_ calls the function and passes it test data.
  - a) Test Stub
  - b) Test Driver**
  - c) Proxy
  - d) None of the above
2. Alpha testing is done at
  - a)Developer's end**
  - b)User's end
  - c)Developer's & User's end
  - d)None of the mentioned
3. Difference between Retesting and Regression Testing is \_\_\_\_\_ .
  - a) Retesting ensures the original fault has been removed where as regression testing looks for unexpected side-effects.**
  - b) Retesting looks for unexpected side-effects where as regression testing ensures the original fault has been removed.
  - c) Retesting is done after faults are fixed where as regression testing is done earlier
  - d) Retesting is done by developers whereas regression testing is done by independent testers
4. Which testing application security has the purpose to prevent problems which may affect the application integrity and stability?
  - a)Vulnerability Testing**
  - b)Ramp Testing
  - c)Penetration Testing
  - d)Fuzz Testing
5. \_\_\_\_\_ is done by suddenly increasing the load for a small period of time and observing the behavior of the system.
  - a) Stress Testing
  - b) Load Testing
  - c) Spike Testing**
  - d) All of these
6. In which testing level the focus is on customer usage?
  - a) Alpha Testing
  - b) Beta Testing



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- c) Validation Testing **d) Both Alpha and Beta**
7. Which of the following is non functional testing for an e-commerce website?
- a) People can buy goods
  - b) people can return faulty goods
  - c) security of system during transaction
  - d) 1000 people can log into system at same time.**
8. A retail company purchased commercial off the shelf application for automating their billing process. But before introducing it on large scale they are going for beta testing .What will be the reason for doing this?
- a) To find defects **c) To gain confidence in system**
  - b) To train employees d) All of the above
9. If a problem occurs in a system 6 months after it completely goes live, what will be the approach for fixing that problem on very urgent basis?
- a) Do not involve testers
  - b) Just go for retest
  - c) Always go for full regression test
  - d) Go for retest and then use risk assessment to decide reasonable subset of regression test suit that will be executed.**
10. If a company decides to migrate from Windows XP to Windows 7, which type of testing is done to ensure that whether your software works on new platform?
- a) Interoperability Testing c) Usability Testing
  - b) Portability Testing** d) Performance Testing
11. Which of the following is NOT a white box technique?
- a) Statement testing **c) State transition testing**
  - b) Path testing d) Data flow testing
12. Which one of the following statements about system testing is NOT true?
- a) System tests are often performed by independent teams.
  - b) Functional testing is used more than structural testing.



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c) Faults found during system tests can be very expensive to fix.

**d) End-users should be involved in system tests.**

13. Integration testing in the small.

a) Tests the individual components that have been developed.

b) Only uses components that form part of the live system.

**c) Tests interactions between modules or subsystems.**

d) Tests interfaces to other systems.

14. Alpha testing is:

a) Post-release testing by end user representatives at the developer's site.

b) The first testing that is performed.

c) Pre-release testing by end user representatives at their sites.

**d) Pre-release testing by end user representatives at the developer's**

15. What is the order in which test levels are performed?

a) Unit, Integration, System, Acceptance

c) Unit, Integration, Acceptance, System

b) Unit, System, Integration, Acceptance

**d) It depends on nature of a project**

16. Which testing is concerned with behavior of whole product as per specified requirements?

a) Acceptance testing

b) Component testing

**c) System testing**

d) Integration testing

17. Software tester should be involved very early during development phase of a project. True or false

**a) True**

b) False



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18. System testing is

- a) **Black box testing**
- b) White box testing
- c) Grey box testing
- d) Both a and b

19. Which of the following is not a method of dynamic testing

- 1. System testing
  - 2. UAT
  - 3. Inspection
  - 4. Unit Testing
  - 5. Walk through
  - 6. Technical review
- a) 1, 2, 4
  - b) **3, 5, 6**
  - c) 2,3,5,6
  - d) All of the above

20. System architecture is determined during which phase?

- a) Requirement gathering
- b) Implementation
- c) Development
- d) **Design**

21. Verifying that whether software components are functioning correctly and identifying the defects in them is objective of which level of testing?

- a) Integration testing
- b) Acceptance testing
- c) **Unit testing**
- d) System Testing

22. Who is responsible for component testing?

- a) Software tester
- b) Designer
- c) User
- d) **Developer**

23. Component testing is a

- a) Black box testing
- b) **White box testing**
- c) Grey box testing
- d) Both a and b

24. Which of the following are functional characteristics?



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- |                    |                     |
|--------------------|---------------------|
| 1. Maintainability | 4. Accuracy         |
| 2. Usability       | 5. Portability      |
| 3. Compliance      | 6. Efficiency       |
| a) 1, 3, 4         | b) 3, 4, 5          |
| <b>c) 3, 4</b>     | d) All of the above |
25. Which of the following is not other name for structural testing?
- |                              |                      |
|------------------------------|----------------------|
| a) White box testing         | b) Glass box testing |
| <b>c) Behavioral testing</b> | d) None of the above |
26. In which of the following situations regression testing is not performed?
- a) When project manager asks to perform.**
- b) When new functionality is introduced.
- c) When database system is changed.
- d) When system is installed on different hardware configuration than previously tested.
27. Which is/are characteristic/s of stress testing?
- a) It is a type of non-functional testing
- b) It is used to determine the stability of a given system.
- c) It put great emphasis on robustness, availability, and error handling under a heavy load, rather than on what would be considered correct behavior under normal circumstances.
- d) All of the above**
28. Which of the following is non-functional testing for an e-commerce website?
- a) People can buy goods
- c) security of system during transaction
- b) People can return faulty goods



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**d) 1000 people can log into system at same time.**

29. Which is not characteristic of regression testing?
- a) Regression testing can be performed on each level
  - b) It is done to illustrate that software is not changed intentionally**
  - c) It is done to illustrate that new defects are not introduced after adding a new functionality or correcting previous one.
  - d) It is best candid aye for automation
30. What is example of load testing?
- a) Downloading large contents from the internet.
  - b) Running multiple applications on a computer or server simultaneously.
  - c) Printing large document using printer in a queue.
  - d) Generating a large amount of traffic on particular page.
  - e) All the above.**
31. Which technique is applied for usability testing?
- a) White box
  - b) Black box**
  - c) Grey box
  - d) Combination of all
32. If a company decides to migrate from Windows XP to Windows 7, which type of testing is done to ensure whether your software works on new platform?
- a) Interoperability testing
  - b) Portability testing**
  - c) Usability testing
  - d) Performance testing
33. If a problem occurs in a system 6 months after it completely goes live, what will be the approach for fixing that problem on very urgent basis?
- a) Do not involve testers
  - b) Just go for retest
  - c) Always go for full regression test





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**d) Go for retest and then use risk assessment to decide reasonable subset of regression test suit that will be executed**

34. In which of the following type of testing, testing is done without planning and documentation?

- a) Unit testing
- b) Retesting
- c) Ad hoc testing**
- d) Regression testing

35. Which test do you infer from the following statement: “The coordination and data management functions of the server are tested.”?

- a) Server tests**
- c) Transaction tests
- b) Application function tests
- d) Network communication tests

36. In beta testing, unlike Alpha testing, people \_\_\_\_\_ the company are included to perform the testing.

- a) Outside Of**
- b) Inside Of
- c) Who Are Head Of
- d) Both A & B

37. Beta testers are selected from the potential user population and given the \_\_\_\_\_ version of software for testing.

- a) Post release
- b) release
- c) true release
- d) pre release**

38. Alpha and Beta testing are not the last phases of development.

- a) True**
- b) False

39. All \_\_\_\_\_ has to be completed before integration testing can be done.

- a) Stress testing
- b) Functional testing
- c) Unit testing**
- d) Load testing





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- a) Waterfall Model  
b) **V-Model**  
c) Spiral Model  
d) Iterative Model
46. \_\_\_\_\_ is triggered by modifications, migration or retirement of existing software.
- a) Regression Testing  
b) Unit Testing  
c) **Maintenance testing**  
d) Integration Testing
47. In \_\_\_\_\_ each component at lower hierarchy is tested individually and then the components that rely upon these components are tested.
- a) Top down testing  
b) Unit testing  
c) Bottom up  
d) Load testing
48. \_\_\_\_\_ Antithesis of scalability.
- a) Load testing  
b) Think time  
c) Performance testing  
d) **Transaction time**
49. \_\_\_\_\_ identifies current bottlenecks in your web or client/server; application and verifies it meets or exceeds key performance measures.
- a) **Performance Testing**  
b) Load Testing  
c) Stress Testing  
d) Reliability Testing
50. Which of the following testing is related to the boundary value analysis?
- a) White box and black box testing  
b) **Black box testing**  
c) White-box testing  
d) None of the above
51. What are the different levels of Testing?
- a) Integration testing  
b) System testing



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- c) Unit testing d) **All of the above**
52. White box testing techniques are?
- a) Statement coverage testing c) Decision coverage testing  
b) Data flow testing d) **All of the above**
53. In which environment we can performed the Alpha testing?
- a) User's end c) **Developer's end**  
b) User's and developer's end d) None of the above
54. Which of the below is not a part of the Test Plan?
- a) Schedule c) Risk  
b) **Incident reports** d) Entry and exit criteria



## **3. Test Management**

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**Position in Question Paper**

**Total Marks-36**

**Q.1. e)2-Marks.**

**Q.2. b)4-Marks.**

**Q.2. c)4-Marks.**

**Q.3. b)4-Marks.**

**Q.4. d)4-Marks.**

**Q.5. b)6-Marks.**

**Q.6. a)6-Marks.**

**Q.6. b)6-Marks.**

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### **Descriptive Question**

- 1) Enlist any four benefit of test plan
- 2) Describe the roles and responsibilities of test leader
- 3) Describe the types of attribute of test plan
- 4) Describe the Test Case Specification and list its parameters
- 5) Explain the Test Management with Test Infrastructure management and Test People Management.
- 6) Design test cases for the data filed from Admission form of your institute (Data filed are Name, SSC percentage, Adhar no, Address, mobile no)
- 7) Design test cases for MSBTE Online Exam form filling.(any valid six test cases)
- 8) Prepare a Test Plan along with the Test Cases for the MS Word option 'Save As'. Test Cases should be at least six.
- 9) Define Test Plan?
- 10) List basic steps of Fundamental test Process.
- 11) Prepare test plan along with test cases for notepad option copy-paste.
- 12) Design any four Test cases for User Login Form.
- 13) Explain test management



14) What is test plan and explain test plan activities

## **MCQ Question**

**(Total number of Question=Marks\*3=14\*3=42)**

1. Unreachable code would best be found using:
  - a) **code reviews**
  - b) code inspections
  - c) a coverage tool
  - d) a static analysis tool
2. Which testing is performed with Planning and Documentation?
  - a) Ad-hoc testing
  - b) Monkey testing
  - c) Fuzz testing
  - d) **End-to-End testing**
3. Which of the following is a major task of test planning?
  - a) **Determining the test approach**
  - b) Preparing test specifications
  - c) Evaluating exit criteria and reporting
  - d) Measuring and analyzing results
4. In which activity of the Fundamental Test Process is the test environment set up?
  - a) **Test implementation and execution**
  - b) Test planning and control
  - c) Test analysis and design
  - d) Evaluating exit criteria and reporting
5. .... provide developers and other parties with feedback about the problem to enable identification, isolation, and correction as necessary.
  - a) **Incident report**
  - b) Incident logging
  - c) Testing report
  - d) Risk report
6. For testing ..... may involve ensuring all items of testware are identified, version controlled, tracked for changes, related to each other and related to the development items, so that traceability can be maintained throughout the test process.
  - a) Test control
  - b) **Test monitoring**





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- c) Test reporting d) **Configuration management**
7. What would happen if the given requirements by the different organization are the same?
- a) It may or may not produce same architecture  
**b) It will produce different architecture**  
c) It will produce same architecture  
d) None of the these
8. You are told to prepare a report on the most commonly occurring product defects. You review the software defect reports, which categories the defects of coding errors, requirement errors, documentation errors, etc. The best tool to report this information is
- a) **A histogram** c) A cause and effect diagram  
b) A pareto diagram d) A scatter plot
9. The order in which test levels are performed is:
- a) Unit, Integration, Acceptance, System  
b) Unit, System, Integration, Acceptance  
c) Unit, Integration, System, Acceptance  
**d) It depends on the nature of a project**
10. Test wares are handed over to maintenance team during which phase?
- a) Test implementation and execution  
**b) Test closure activity**  
c) Evaluating exit criteria and reporting  
d) Test analysis and design
11. When would the testing have been stopped?
- a) When all the tests run c) When the time completed  
b) When the faults have been fixed **d) When all the risk are resolved**
12. Writing a test summary report is a major task of \_\_\_\_\_.
- a) Test Closure activity  
b) Implementation and execution  
**c) Evaluating exit criteria and Reporting**



d) Analysis and Design

13. What are the criteria to decide the testing efforts?

1. Time and budget

3. Size of testers

2. Size of development team

4. Risk associated with project

a) 1, 3, 4

**c) 1, 4**

b) 1, 2, 3

d) 1, 3

14. During which activity tester decides if extra test cases are required or not?

a) Test implementation and execution

**c) Test analysis and design**

b) Test planning and control

d) Evaluating exit criteria

15. Which activities are a part of the Test Execution and Implementation?

1. Creating test suites from the test cases

2. Executing test cases either manually or by using test execution tools

3. Comparing actual results

4. Designing the Tests

5. Writing a test summary report

a) 1, 2, 3, 4

c) 1, 2, 4

**b) 1, 2, 3**

d) 1, 2, 3, 5

16. Impact Analysis help to decide which of the following testing describe below.

a) **How much regression testing should be done**

b) How many more test cases need to written

c) Exit Criteria

d) Different Tools to perform Regression Testing

17. Which of the following would NOT normally form part of a test plan?



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- a) Features to be tested  
b) Risks  
c) **Incident reports**  
d) Schedule
18. How many types of software testing exist?  
a) 1  
b) **2**  
c) 3  
d) 4
19. What is the order in which test levels are performed?  
a) Unit, Integration, System, Acceptance  
b) Unit, Integration, Acceptance, System  
c) Unit, System, Integration, Acceptance  
d) **Its depends on nature of a project**
20. Which testing is concerned with behavior of whole product as per specified requirements?  
a) Acceptance testing  
b) Component testing  
c) **System testing**  
d) Integration testing
21. Software tester should be involved very early during development phase of a project. True or false  
a) **True**  
b) False
22. System testing is a  
a) **Black box testing**  
b) White box testing  
c) Grey box testing  
d) Both a and b
23. Which of the following is not a method of dynamic testing  
1. System testing  
2. UAT  
3. Inspection  
4. Unit Testing  
5. Walk through  
6. Technical review





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a) **When project manager asks to perform.**

b) When new functionality is introduced.

c) When database system is changed.

d) When system is installed on different hardware configuration than previously tested.

31. Which is/are characteristic/s of stress testing?

a) It is a type of non-functional testing

b) It is used to determine the stability of a given system.

c) It put great emphasis on robustness, availability, and error handling under a heavy load, rather than on what would be considered correct behavior under normal circumstances.

**d) All of the above**

32. Which of the following is non-functional testing for an e-commerce website?

a) People can buy goods

c) security of system during transaction

b) People can return faulty goods

**d) 1000 people can log into system at same time.**

33. Which is not characteristic of regression testing?

a) Regression testing can be performed on each level

**b) It is done to illustrate that software is not changed intentionally**

c) It is done to illustrate that new defects are not introduced after adding a new functionality or correcting previous one.

d) It is best candid aye for automation

34. What is example of load testing?



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- a) Downloading large contents from the internet.
- b) Running multiple applications on a computer or server simultaneously.
- c) Printing large document using printer in a queue.
- d) Generating a large amount of traffic on particular page.
- e) All the above.**

35. Which technique is applied for usability testing?

- a) White box
- b) Black box**
- c) Grey box
- d) Combination of all

36. If a company decides to migrate from Windows XP to Windows 7, which type of testing is done to ensure whether your software works on new platform?

- a) Interoperability testing
- b) Portability testing**
- c) Usability testing
- d) Performance testing

37. If a problem occurs in a system 6 months after it completely goes live, what will be the approach for fixing that problem on very urgent basis?

- a) Do not involve testers
- b) Just go for retest
- c) Always go for full regression test
- d) Go for retest and then use risk assessment to decide reasonable subset of regression test suit that will be executed**

38. In which of the following type of testing, testing is done without planning and documentation?

- a) Unit testing
- b) Retesting
- c) Ad hoc testing**
- d) Regression testing

39. Which test do you infer from the following statement: “The coordination and data management functions of the server are tested.”?











## **4 Defect Management**

**Position in Question Paper**

**Total Marks-12**

**Q.1. f)2-Marks.**

**Q.3. c)4-Marks.**

**Q.6. c)6-Marks.**

### **Descriptive Question**

- 1) Enlist type of defect classification
- 2) Draw Defect Management Process. State the working of each phase.
- 3) Design any three test cases for railway reservation form and prepare defect report of it.
- 4) Explain different types of defect classification.
- 5) State five general activities of defect prevention.
- 6) Design any two test cases for simple calculator application and prepare defect report.
- 7) List and explain causes of defect
- 8) Explain Bug life cycle with diagram
- 9) State how to minimize risk impact while estimating defects
- 10) What are different techniques for finding defects? Explain in detail
- 11) Which parameters are considered while writing good defect report?

### **MCQ Question**

**(Total number of Question=Marks\*3=12\*3=36)**

1. Defect Management process does not include
  - a) Defect prevention
  - b) **Deliverable base-lining**
  - c) Management reporting
  - d) None of the above
2. Cost of software testing is \_\_\_\_\_ percentage of software development
  - a) 5-10
  - b) 20-40
  - c) **40-50**
  - d) 70-80



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3. What is the ratio of effort needed to fixing a defect in Requirement Phase, Design Phase, Coding -Phase and Implementing Phase?
- a) 1:4:7:10  
b) **1:6:10:1000**  
c) 1:8:12:100  
d) 1:10:100:1000
4. Defects can be found more easily in \_\_\_\_\_.
- a) **Bottom up Integration Testing**  
b) Top down Integration Testing  
c) Big Bang Testing.  
d) Sandwich Integration Testing
5. In a company if the test plan is not written according to the standards, which category of defect will it be classified into
- a) **Process defect**  
b) Product defect  
c) Procedure defect  
d) Documentation defect
6. Which of the following defect attribute denotes the order in which defects need to be fixed?
- a) Severity  
b) **Priority**  
c) Intensity  
d) Complexity
7. A team wants to set up field searching in an HP Application Lifecycle Management project. What should they know to accomplish this?
- a) All system fields are searchable, which may impact search times.  
b) **Only user fields of type memo or string are searchable.**  
c) By default, all eligible fields are set to searchable.  
d) The searchable option is only available for the Test and Defects modules.
8. Defect ..... is a defect which is caused by another defect. One defect triggers the other defect.
- a) Smoothing  
b) **Cascading**  
c) Tracking  
d) Massaging
9. What Direct measures include in the Software product?







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- a) mutant defect  
b) **masked defect**  
c) latent defect  
d) delayed defect
14. If a defect is delayed for later phases it proves more costly.  
a) **True**  
b) False
15. Defect ..... is a defect which is caused by another defect. One defect triggers the other defect.  
a) smoothing  
b) **cascading**  
c) tracking  
d) massaging
16. Normally, the impact ratings for defects are classified into three types:  
a) Minor, Low, Critical  
b) Low, Major, Critical  
c) Minor, Major, High  
d) **Minor, Major, Critical**
17. The main focus of ..... is to reduce defects and variations in the processes.  
a) QA  
b) QC  
c) **Six Sigma**  
d) None
18. Defect ..... is a technique that was developed to estimate the number of defects resident in a piece of software.  
a) Density  
b) **Seeding**  
c) Age  
d) Latency
19. DRE () is a powerful metric used to measure test effectiveness.  
a) **Defect Removal Efficiency**  
b) Spoilage  
c) Age  
d) Latency
20. Defect Spoilage is:  
Sum of number of Defects X End Phase  
a) = -----  
Total number of defects  
Total number of defects X Discovered Phase  
b) = -----



Total number of defects

**Sum of number of Defects X Discovered Phase**

c) = -----

**Total number of defects**

Sum of number of Defects X Discovered Phase

d) = -----

Defects found by customer

21. Three simple steps below refer to: Analyze defects or errors to trace the root causes. Suggest preventive actions to eliminate the defect root causes.

Implement the preventive actions.

a) **Defect Prevention**

c) Defect Age

b) Defect Tracking

d) Defect Risks

22. Which of the following is not a state of a defect in defect life cycle:

a) New

d) Deferred

b) Open

**e) Critical**

c) Verified

23. .... happens when defect introduced in one phase passes to another phase without getting caught in the phase-end verification or validation activities.

a) Defect Cascading

c) QC

b) Defect Prevention

**d) Defect Leakage**

24. Defects can be detected and added to your Quality Center project by users during..... of the testing process

a) The final stage

c) all stages but after first stage

**b) all stages**

d) Both B & C

25. While reviewing new defects, if duplicate defects appear in the project, change their status to either ....., or delete them from the project.



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- 
- a) Closed  
b) Rejected
- c) Duplicate  
d) **both A & B**
26. .... enable you to analyze the progress of defect repairs, and view how long defects have been residing in a project.
- a) Reports  
b) Graphs
- c) analysers  
d) **Both A & B**
27. You track defects in the Quality Center Defects module, which you open by clicking the Defects button on the sidebar.
- a) **True**  
b) False
28. To find a specific defect by Defect ID in the Defects Grid, choose .....
- a) Defects > Find Defect.  
b) Defects > Search Defect.
- c) **Defects > Go To Defect.**  
d) None of above
29. You cannot add user-defined fields and change the label of any of the fields in the Defects Grid.
- a) True  
b) **False**
30. You can use the ..... to restrict and dynamically change the fields and values in the Defects Grid.
- a) **Script Editor**  
b) Defect Editor
- c) Scripts Editor  
d) Defects Editor
31. You can link defects to other Quality Center entities, such as requirements, tests and other defects.
- a) **True**  
b) False
32. In addition to adding defects directly in Quality Center, you can also import defect data from ..... to your Quality Center project.
- a) Microsoft Word  
b) **Microsoft Excel**
- c) Lotus  
d) txt file
33. There are two methods you can use to conduct a search for similar defects:



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- 
- a) **Find Similar Defects** c) Find Similar Texts.  
b) Find Similar Defect d) Find Similar Text.
34. Tracking the repair of defects in a project requires that you periodically update defects. You can do so directly in the .....
- a) Defects Grid c) Find Defects dialog box  
b) Defect Details dialog box. d) **Both A & B**
35. You can send e-mail about a defect to another user. This enables you to inform development and quality assurance personnel about defect repair activity.
- a) **True** b) False
36. You can link a defect to the test sets.
- a) True b) **False**
37. A defect can be linked directly or indirectly to an entity
- a) **True** b) False
38. You can remove defect links from the .....
- a) **Linked Defects grid** c) Linked Defect grid  
b) Link Defects grid d) Both B & C
39. During which phase discrepancies are reported as defects?
- a) Evaluating exit criteria and reporting  
b) Test closure activity  
c) **Test implementation and execution**  
d) Test analysis and design
40. Defect reports are useful as they contain
- a) defect description d) Name of tester  
b) Priority e) **All of the above**  
c) Summary
41. Which metrics is used to compares field defects with test defects?





## 5. Testing tools and Measurements

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**Position in Question Paper**

**Total Marks-20**

Q.1. g)2-Marks.

Q.2. d)4-Marks.

Q.3. d)4-Marks.

Q.4. e)4-Marks.

Q.5. c)6-Marks.

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### Descriptive Question

- 1) Write any four limitations of manual testing
- 2) State the Advantages and Disadvantages of using testing tools.
- 3) State any four points of comparison between Static analysis tools and Dynamic analysis tools.
- 4) Enlist and describe criteria for Selecting Testing Tools with its description.
- 5) Elaborate the concept of Software Metrics? Describe Product and Process metrics with suitable example.
- 6) List the benefits of automation testing.
- 7) Define software matrix and measurement.
- 8) Differentiate between manual testing & automation testing.
- 9) Differentiate between manual testing & automation testing.

### MCQ Question

**(Total number of Question=Marks\*3=12\*3=36)**

1. A metric used to measure the characteristic of the methods, Techniques and tools employed in developing, implementing and maintaining the software system called as

a) **Process metric**

c) Test metrics

b) Product Metric

d) Testing Metrics





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2. It measures the quality of processes used to create a quality product. It is a system of management activities, It is a preventive process, It applies for entire life cycle & Deals with Process.

- a) Validation
- b) Verification
- c) **Quality Assurance**
- d) Quality Control

3. A useful tool to visualize, clarify, link, identify, and classify possible cause of a problem. This is also called as “fishbone diagram” what is this?

- a) Pareto Analysis
- b) **Cause-and-Effect Diagram**

4. It measures the quality of a product It is a specific part of the QA procedure, It is a corrective process, It applies for particular product & Deals with the product.

- a) Validation
- b) Verification
- c) Quality Assurance
- d) **Quality Control**

5. Defect Spoilage is:

Sum of number of Defects X End Phase

a) = -----  
Total number of defects

Total number of defects X Discovered Phase

b) = -----  
Total number of defects

**Sum of number of Defects X Discovered Phase**

c) = -----  
**Total number of defects**

Sum of number of Defects X Discovered Phase

d) = -----  
Defects found by customer

**6. Find Error/Output in follwing code:**

```
struct  
{  
    int si;
```







18. Which of the following tool is helpful in all the stages of SDLC?
- a) Central Repository
  - b) Lower Case Tools
  - c) **Integrated Case Tools**
  - d) Upper Case Tools
19. Which of the following is not a type of CASE tool?
- a) Diagram tools
  - b) Process Modeling Tools
  - c) Documentation Tools
  - d) **Testing tool**
20. In which of the following methodologies CASE tool mainly used?
- a) RAD
  - b) OO Approach
  - c) JAD
  - d) **All of the above**
21. Which tool is used to assist in designing web pages?
- a) **Web Development Tools**
  - b) Prototyping Tools
  - c) Programming Tools
  - d) All of the above
22. Which of the following is not a drawback of CASE tool?
- a) **Perform testing easily**
  - b) Technical limitation
  - c) Very difficult for technology transfer
  - d) Difficult to select a case tool.
23. Defects removal efficiency (DRE) depends on:
- a) errors found before software delivery
  - b) defects found after delivery to user
  - c) **Both A and B**
  - d) None of the above
24. Which of the following is an indirect measure of product?
- a) Quality
  - b) Complexity
  - c) Reliability
  - d) **All of the above**
25. Which of the following is not a direct measure of SE process?
- a) **Efficiency**
  - b) Cost
  - c) Effort Applied
  - d) All of the above

26. Which of the following is false?

- a) The user has no control over the contents of a static web page.
- b) **The static content objects are dependent on the actions of the user.**
- c) It is expected to have less number of connections for a good web application.
- d) Both A and B

27. Function Point Computation is given by the formula

- a)  $FP = [\text{count total} * 0.65] + 0.01 * \text{sum}(Fi)$
- b)  **$FP = \text{count total} * [0.65 + 0.01 * \text{sum}(Fi)]$**
- c)  $FP = \text{count total} * [0.65 + 0.01] * \text{sum}(Fi)$
- d)  $FP = [\text{count total} * 0.65 + 0.01] * \text{sum}(Fi)$

28. SMI stands for?

- a) Software Mature Indicator
- b) Software Mature Index
- c) **Software Maturity Index**
- d) Software Maturity Indicator

29. Statement and branch coverage metrics are part of

- a) Analysis Model
- b) Source Code
- c) Design Model
- d) **Testing**

30. Size and Complexity are a part of

- a) **Product Metrics**
- b) Process Metrics
- c) Project Metrics
- d) None of the above

31. Number of errors found per person hours expended is an example of a

- a) Measurement
- b) Measure
- c) **Metric**
- d) None of the above

32. The arc-to-node ratio is given as  $r = a/n$ . What does "a" represent in the ratio?

- a) maximum number of nodes at any level
- b) longest path from the root to a leaf
- c) number of modules
- d) **lines of control**