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Number: ATTA
Passing Score: 800
Time Limit: 120 min



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ATTA

Advanced Technical Test Analyst

Sections

1. Test Techniques various
2. Structure-based Techniques
3. Bonus Program
4. Test tools & Automation
5. Testing of Software Characteristics
6. Specification Based Test Techniques
7. Test Process & Incident Management

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Exam A

QUESTION 1

As part of a risk analysis, technical risks are analyzed. Which TWO factors influence technical risk?

- A. Complexity of technology
- B. Frequency of use of the affected failure
- C. Interfacing and integration issues
- D. Damage to image
- E. Lack of reasonable workaround

Correct Answer: AC

Section: Test Techniques various

Explanation

Explanation/Reference:

QUESTION 2

A component has been analyzed as being highly critical. Which of the following structure-based test design techniques provides the highest level of coverage?



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- A. Statement testing
- B. Decision testing
- C. Condition determination testing
- D. Multiple condition testing

Correct Answer: C

Section: Test Techniques various

Explanation

Explanation/Reference:

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QUESTION 3

The result of a product risk analysis performed on components I, II and III of the airplane control system shows the following risk matrix:

Impact ↑	II	I
	III	
	Likelihood →	

The project wants to mitigate the risks by defining different types of coverage depending on the risk level of the components. Which of the following would be a meaningful solution for setting the coverage targets?

- A. I: Condition determination coverage, II: Decision Coverage, III: Statement coverage
- B. I: Condition determination coverage, II: Statement coverage, III: Decision coverage
- C. I: Decision coverage, II: Condition determination coverage, III: Statement Coverage
- D. I: Multiple condition coverage, II: Decision coverage, III: Condition determination coverage

Correct Answer: A

Section: Test Techniques various

Explanation

Explanation/Reference:

QUESTION 4

How many test cases would be needed to achieve 100% decision coverage?

- A. 1
- B. 2

- C. 3
- D. 4

Correct Answer: A

Section: Structure-based Techniques

Explanation

Explanation/Reference:

QUESTION 5

How many test cases would be needed to achieve 100% statement coverage?

- A. 1
- B. 2
- C. 3
- D. 4

Correct Answer: A

Section: Structure-based Techniques

Explanation

Explanation/Reference:

QUESTION 6

What is the number of nested levels for the code fragment?

- A. 0
- B. 1
- C. 2
- D. 3

Correct Answer: C

Section: Structure-based Techniques

Explanation

Explanation/Reference:

QUESTION 7

Which specification-based technique could be used to enhance coverage for this code fragment?

- A. Boundary value analysis
- B. Exploratory testing
- C. State transition testing
- D. Use case testing

Correct Answer: A

Section: Structure-based Techniques

Explanation

Explanation/Reference:

QUESTION 8

Consider the following code fragment

```
If (a>b) and (b>c) then  
    b = (a+c)/2  
endif
```

Assume that in the following options, each of the three numbers in parenthesis represent the inputs for a test case, where the first number represents variable “a”, the second number represents variable “b”, and the third number represents variable “c”.

Which of the following gives a set of test case inputs that achieves 100% decision coverage for this fragment of code with the minimum number of test cases?



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- A. (5, 3, 2)
- B. (5, 3, 2); (5, 4, 0)
- C. (5, 4, 0); (4, 5, 0)
- D. (4, 5, 0); (5, 4, 5)

Correct Answer: C

Section: Structure-based Techniques

Explanation

Explanation/Reference:

QUESTION 9

For the control flow, what is the correct labelling?

i ii iii

- A. Nodes Link Region
- B. Nodes Region Link
- C. Region Link Nodes
- D. Region Nodes Link

Correct Answer: A

Section: Structure-based Techniques

Explanation

Explanation/Reference:

QUESTION 10

Which of the following is a valid way to calculate the cyclomatic complexity?

- A. Number of decisions + 2
- B. Number of enclosed regions - 1
- C. Number of statements - 2
- D. Links - Nodes + 2

Correct Answer: D

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 11

What is the value of statement coverage achieved by test case 1 from test set A?

- A. ? 75% (21/28)
- B. ? 78% (22/28)
- C. ? 85% (24/28)
- D. ? 90% (25/28)

Correct Answer: A

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 12

Which additional set of test cases is needed to achieve both 100% statement coverage and 100% decision coverage?

A.

Price	Quantity	Bonus	Market
4.0	1100	1	UK
1.0	3	4	NL

B.

Price	Quantity	Bonus	Market
1.2	2000	10	USA
3.0	1100	20	UK

C.

Price	Quantity	Bonus	Market
2.0	5000	3	NL
3.0	500	3	USA

D.

Price	Quantity	Bonus	Market
5.0	1100	1	USA
1.0	1	1	USA

Correct Answer: C

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 13

Which TWO additional structure-based test design techniques could be used to dynamically test the code?

- A. Condition testing
- B. Multiple condition testing
- C. Equivalence partitioning
- D. Cause/effect graphing
- E. Code reviews

Correct Answer: AB

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 14

The application of multiple condition testing is also being considered.

Which specification-based technique is largely based on the principle of multiple condition testing?

- A. Equivalence Partitioning
- B. State Transition Testing
- C. Decision Table Testing

D. Use Cases

Correct Answer: C

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 15

How many test cases are needed to test code fragment lines 26 – 32 to achieve 100% multiple condition coverage?

A. 2

B. 3

C. 4

D. 8

Correct Answer: D

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 16

The Bonus Program is perceived by management to be critical. Defects in the program would almost immediately lead to financial loss. In the past an improvement program has been run to implement review based on IEEE 1028. Knowledge and skills on both formal and informal reviews are available. There is also an existing pool of review leaders. Which of the following review types would you choose to review the program?

A. Informal review

B. Inspection

C. Walkthrough

D. Management review

Correct Answer: B

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 17

You have tested the program and have found that with “bonus” a boundary value has not been implemented according to design. You have written an incident report. Which of the following is the incident report of the highest quality?

- A. Description: Boundary value not correctly implemented
Priority: High
Repeatability: Yes
Tester: WVU
Test case: 35 (test specification “bonus program”), V1.2
- B. Description: Boundary value not correctly implemented for bonus
Priority: Medium
Tester: WVU
Test case: 35 (test specification “bonus program”)
- C. Description: Boundary value not correctly implemented for bonus (line 26: 10 according to design, now 5 implemented)
Priority: High
Repeatability: Yes
Tester: WVU
Test case: 35 (test specification “bonus program”), V1.2
- D. Description: Boundary value not correctly implemented for bonus
Priority: High
Repeatability: Yes
Tester: WVU
Test case: 35 (test specification “bonus program”), V1.2

Correct Answer: C

Section: Bonus Program

Explanation

Explanation/Reference:

QUESTION 18

When performing code reviews, which of the following defect types will be most difficult to find?

- A. Dead code
- B. Variable used that is not defined
- C. Memory issues
- D. Conformance to design

Correct Answer: C
Section: Bonus Program
Explanation

Explanation/Reference:

QUESTION 19

During code reviews, it is the author's responsibility...

- A. to address all major and minor defects as stated in the defect log
- B. to fix all major and minor defects as stated in the defect log
- C. to take action on only improvement suggestions from the defect log
- D. to correct source documents that have major defects

Correct Answer: A
Section: Bonus Program
Explanation

Explanation/Reference:

QUESTION 20

An organisation has already implemented a static analysis tool and is considering whether code reviews would have any added value. Which of the following defect types can only be found by means of code reviews?



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- A. Conformance to coding standards
- B. Conformance to design
- C. Endless loop
- D. Cyclomatic complexity too high

Correct Answer: B

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Section: Bonus Program**Explanation****Explanation/Reference:****QUESTION 21**

To support code reviews a checklist will be developed. Which TWO questions from the list would you implement as part of the code review checklist?

- A. Are any magic numbers (numeric literals) used, other than 0 or 1?
- B. Can each item be implemented with the techniques, tools, and resources available?
- C. Is it possible during acceptance testing to verify whether the item has been satisfied?
- D. Is the item specified in an exact, unambiguous way?
- E. Is there any logic containing no statements and no explanation as to why it is empty?

Correct Answer: AE

Section: Bonus Program**Explanation****Explanation/Reference:****QUESTION 22**

Applying exploratory testing (ET) during unit testing is being considered. Which ET deliverable would be the primary candidate for informal reviews?

- A. Test log & coverage outline
- B. Test charter
- C. Heuristics
- D. Test case specification

Correct Answer: B

Section: Bonus Program**Explanation****Explanation/Reference:****QUESTION 23**

Select TWO solutions how the team could achieve significant benefits in the use of this tool within the next 6 months?

- A. Introduce data-driven or keyword driven scripting techniques
- B. Change the development process
- C. Select and implement a test management tool to complement the test suite
- D. Identify critical parts of the system and concentrate on automating some of those tests for that particular area
- E. Get business testers involved in the automation process

Correct Answer: AD

Section: Test tools & Automation

Explanation

Explanation/Reference:

QUESTION 24

A developer has spent three days looking at a system that crashes now and then. The problem was caused by two coding faults:

- i. A variable was being used but had not been defined;
- ii. There was a 'goto' statement to an undefined label

- A. Static analysis tool
- B. Code coverage tool
- C. Dynamic analysis tool
- D. Test execution tool

Correct Answer: A

Section: Test tools & Automation

Explanation

Explanation/Reference:

QUESTION 25

A new web site has been launched for a conference organisation. There are a number of links to other related websites for information purposes. Customers like the new site but complaints are being made that some (not all) of the links to other sites do not work.

- A. Performance tool
- B. Hyperlink tool

- C. Usability testing tool
- D. Static analysis tool

Correct Answer: B

Section: Test tools & Automation

Explanation

Explanation/Reference:

QUESTION 26

It has been decided to improve the efficiency and effectiveness of unit testing by acquiring a number of test tools. Which TWO of the following tools would you select to support unit testing?

- A. Dynamic analysis
- B. Review tool
- C. Coverage measurement tool
- D. Monitoring
- E. Test management

Correct Answer: AC

Section: Test tools & Automation

Explanation

Explanation/Reference:

QUESTION 27

You have been asked to select a number of tools to support the performance testing. Which TWO of the following tools would you recommend?

- A. Test management tool
- B. Load testing tool
- C. Static analysis tool
- D. Monitoring tool
- E. Test oracle tool

Correct Answer: BD

Section: Testing of Software Characteristics

Explanation**Explanation/Reference:****QUESTION 28**

At which test level would performance testing most likely be performed?

- A. Component Testing
- B. Integration Testing
- C. System Testing
- D. User Acceptance Testing

Correct Answer: C

Section: Testing of Software Characteristics

Explanation**Explanation/Reference:****QUESTION 29**

To address reliability a number of measures will be taken throughout the development and testing process. Select TWO appropriate measures that are typically taken as part of reliability engineering and/or testing of an application.

- A. Define Operational Profiles
- B. State Transition Testing
- C. Usability testing
- D. Perform design FMEAs
- E. Exploratory test

Correct Answer: AD

Section: Testing of Software Characteristics

Explanation**Explanation/Reference:****QUESTION 30**

It has been decided by management to ask an external consultant to perform a reliability assessment. The external consultant will use a checklist to support the

assessment. Select TWO checklist items that are most likely to be part of a reliability checklist.

- A. Are traceability matrices provided to the requirements?
- B. Is all code supported by a reviewed design document?
- C. Is the comment frequency at the correct level?
- D. Is a dual set of hardware available?
- E. Are features available for a periodic check of the database consistency?

Correct Answer: DE

Section: Testing of Software Characteristics

Explanation

Explanation/Reference:

QUESTION 31

It has been suggested to organise a performance test to find out more regarding the third risk. Which of the following would you use to quantify the situation and as a basis for defining a performance exit criteria?

- A. Defect analysis time
- B. Change parameter success ratio
- C. Number of errors made by the user
- D. Time to perform the function

Correct Answer: D

Section: Testing of Software Characteristics

Explanation

Explanation/Reference:

QUESTION 32

To address the second risk mentioned in the scenario, security testing will be performed. Which test techniques would be most applicable for security testing?

- A. Boundary Value Analysis
- B. Statement Testing
- C. Use Cases
- D. Fault Attacks

Correct Answer: D

Section: Testing of Software Characteristics

Explanation

Explanation/Reference:

QUESTION 33

What is the theoretical maximum level of switch coverage that can be achieved for the state diagram above?

- A. 4
- B. 5
- C. 6
- D. 7

Correct Answer: B

Section: Specification Based Test Techniques

Explanation

Explanation/Reference:

QUESTION 34

How many test cases are required to test a specification that has three conditions using a decision table testing which is not collapsed?

- A. 2
- B. 4
- C. 6
- D. 8

Correct Answer: D

Section: Specification Based Test Techniques

Explanation

Explanation/Reference:

QUESTION 35

Consider the following decision table,

	1	2	3	4	5	6	7	8
C1	1	1	1	1	0	0	0	0
C2	1	1	0	0	1	1	0	0
C3	1	0	1	0	1	0	1	0
A1	X	X						
A2	X							

How many cases are left when this decision table is collapsed?

- A. 2
- B. 3
- C. 4
- D. 5

Correct Answer: C

Section: Specification Based Test Techniques

Explanation

Explanation/Reference:

QUESTION 36

Scenario:

“Tax system”

Due to new legislation the tax system needs to be updated. For a person that has a salary less than € 20.000, the tax needs to be re-calculated. If the person also has more than two children an additional 10% reduction is applicable.

For equivalence partitioning based on this specification, how many output classes can be determined?

	1	2	3	4	5	6	7	8
C1	1	1	1	1	0	0	0	0
C2	1	1	0	0	1	1	0	0
C3	1	0	1	0	1	0	1	0
A1	X	X						
A2	X							

- A. 2
- B. 3
- C. 4
- D. 5

Correct Answer: B

Section: Specification Based Test Techniques

Explanation

Explanation/Reference:

QUESTION 37

You are testing a set of signal changes at a railway station. The system is newly build using a traditional V-model approach. A full set of documentation is available that can be used as a test basis. Furthermore the system is identified as being safety critical. Which technique would you most likely use?

- A. Equivalence Partitioning
- B. Exploratory Testing
- C. State transition Testing
- D. Boundary Value Analysis

Correct Answer: C

Section: Specification Based Test Techniques

Explanation

Explanation/Reference:

QUESTION 38

Which of the following is an example of testing as part of the software design phase?

- A. A design review meeting
- B. An architect translating requirements into design
- C. Performing unit tests against design
- D. A test log showing code coverage achieved

Correct Answer: A

Section: Test Process & Incident Management

Explanation

Explanation/Reference:

QUESTION 39

As a technical test analyst, you have found out during test case design that the design document is incomplete. Which is an example of a good way to communicate that problem in an email?

- A. E-mail: "Until I have received an updated version of the design document, I will not do any work on the test design."
- B. E-mail: "When will it be possible to receive the missing information? Test design is impeded by a lack of clarity here."
- C. E-mail: "Here we go again. The developer gave us incomplete and ambiguous design specifications. Typical."
- D. Do not communicate the problem, just log the delaying effect of the information problem and be ready to explain the delays to the test manager later.

Correct Answer: B

Section: Test Process & Incident Management

Explanation

Explanation/Reference:



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