Preparation to ISTQB Foundation Level Certification Exam

By Vladimir Arutin

My experience

ISTQB® Certified Tester Foundation Level

ISTQB® Certified Test Manager Advanced Level

ISTQB Mentor

INTERNATION SOFTWARE TESTING QUALIFICATION BOARD

ISTQB® has created the world's most successful scheme for certifying software testers.
As of December 2018, ISTQB® has administered over 830,000 exams and issued more than 605,000 certifications in over 120 countries world-wide.
The scheme relies on a Body of Knowledge (Syllabi and Glossary) and exam rules that are applied consistently all over the world, with exams and supporting material being available in many languages.
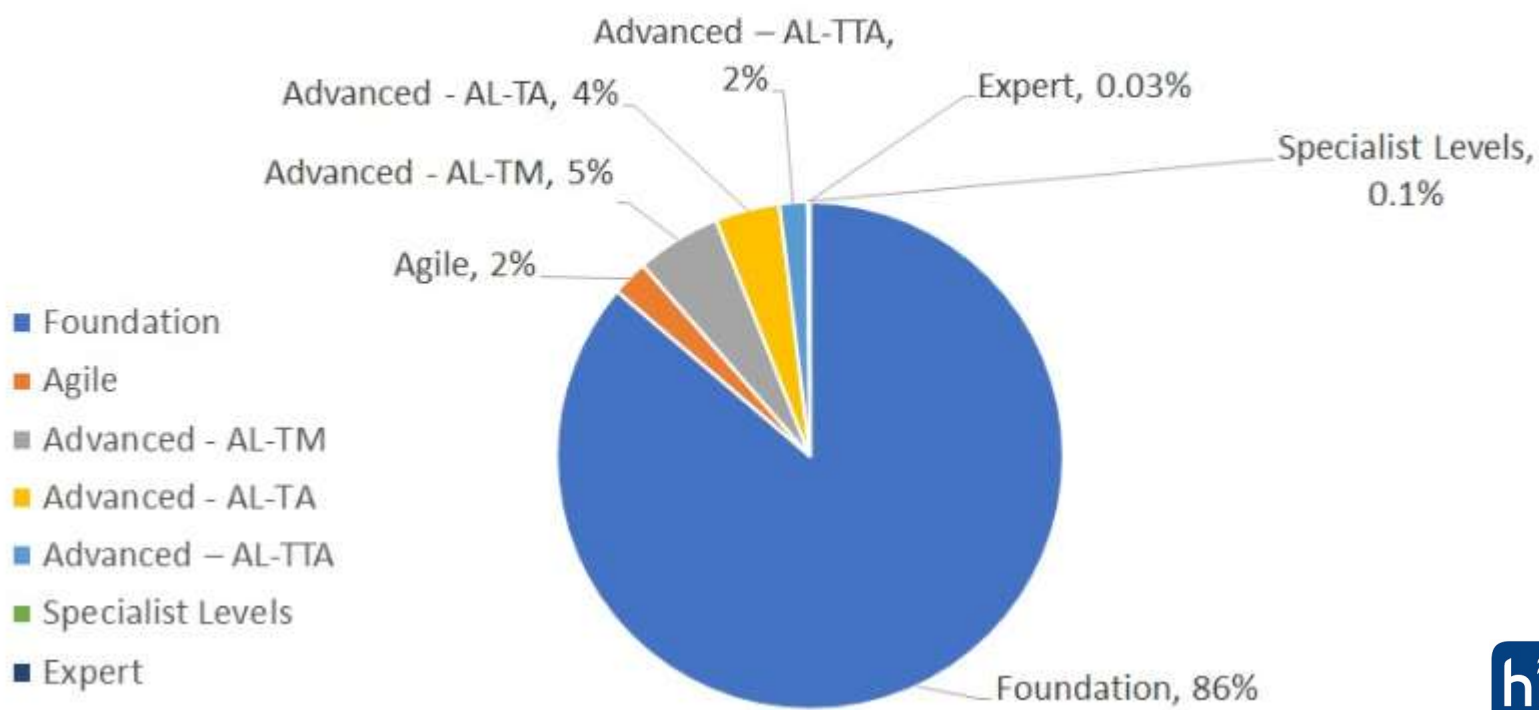
https://www.istqb.org/

What is ISTQB?
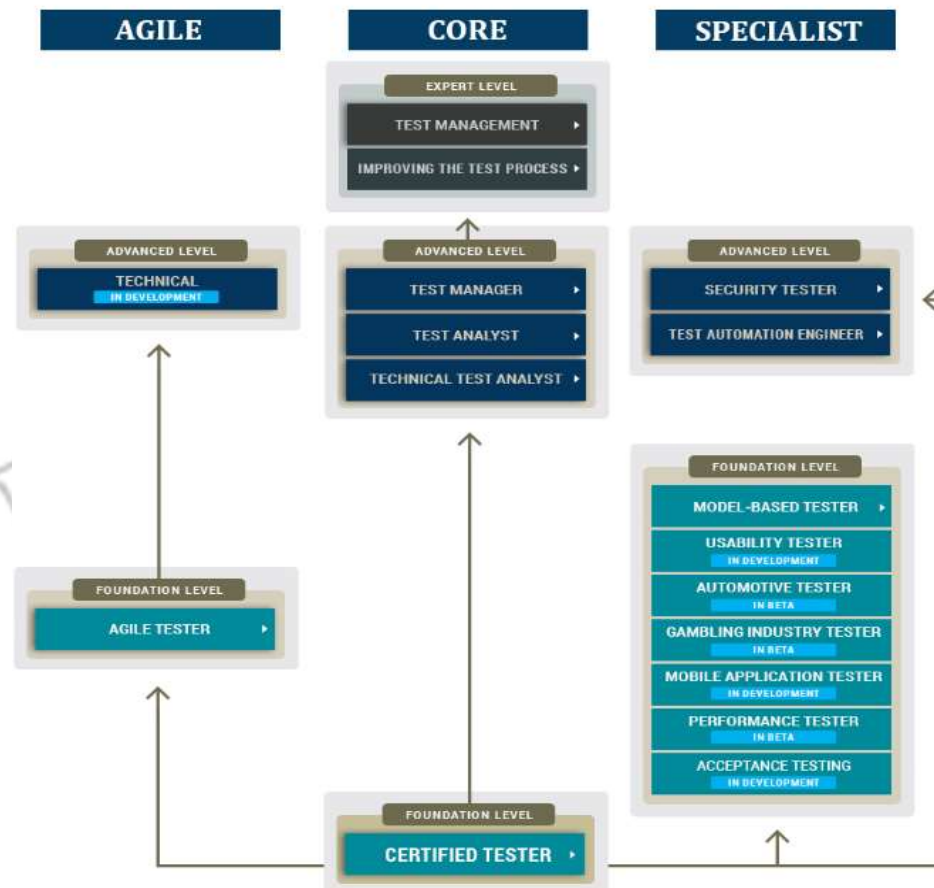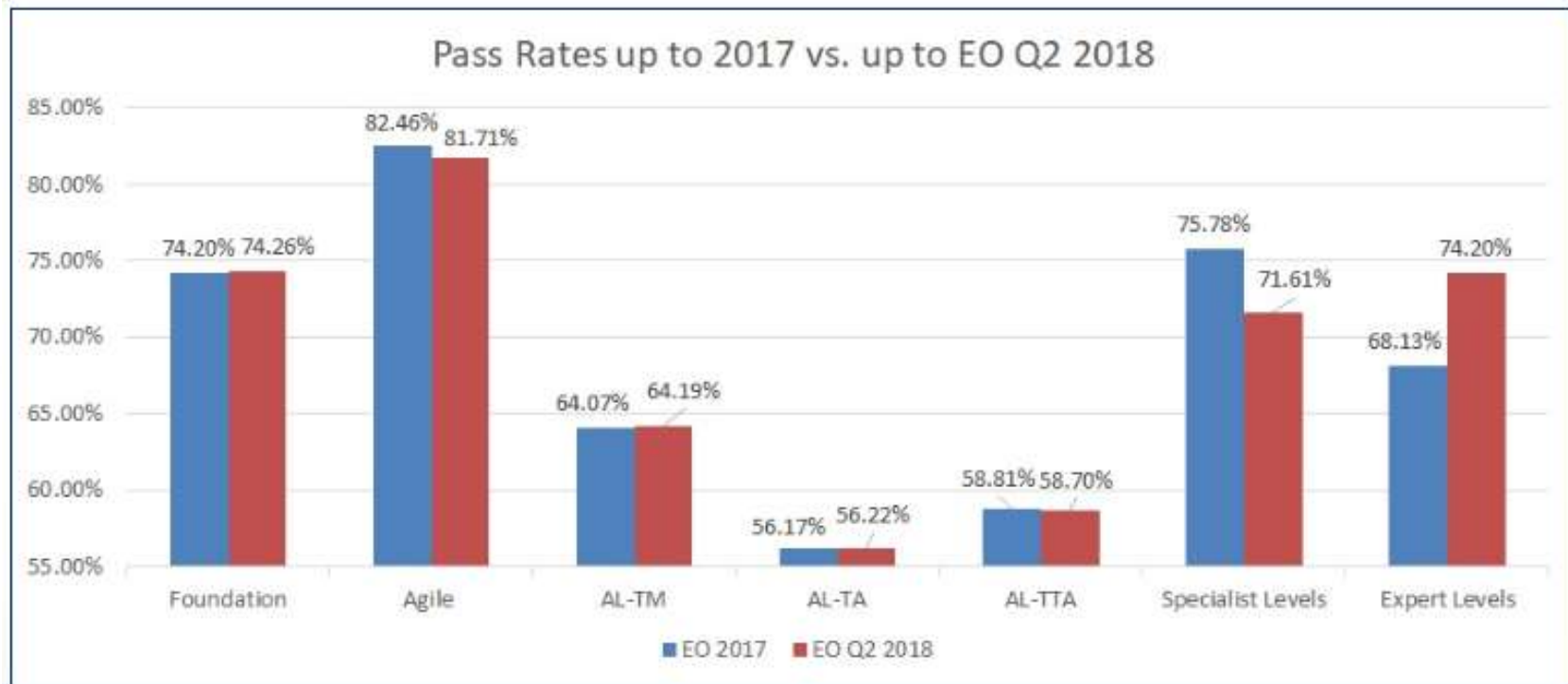
Countries covered by **Member Boards** and Global Exam Providers

Countries covered by **Global Exam Providers**

% of ISTQB® Certificates (up to Q2, 2018)

EXAM RULES

Pass Rates up to 2017 vs. up to EO Q2 2018

Category	EO 2017	EO Q2 2018
Foundation	74.20%	74.26%
Agile	82.46%	81.71%
AL-TM	64.07%	64.19%
AL-TA	56.17%	56.22%
AL-TTA	58.81%	58.70%
Specialist Levels	75.78%	71.61%
Expert Levels	68.13%	74.20%

The global pass-rate of ISTQB® exams (world-wide average since inception) as of December 2018.

EXAM RULES

MODULE	NUMBER OF QUESTIONS	EXAM LENGTH (IN MINUTES)	EXAM LENGTH FOR NON NATIVE LANGUAGE
FOUNDATION	40	60	75
AGILE TESTER	40	60	75
MODEL-BASED TESTER	40	60	75
ADVANCED TEST MANAGER	65	180	225
ADVANCED TEST ANALYST	60	180	225
ADVANCED TECHNICAL TEST ANALYST	45	120	150
ADVANCED SECURITY TESTER	45	120	150
ADVANCED TEST AUTOMATION ENGINEER	40	90	113

EXAM RULES

❑ The Foundation Level exam is based on the Foundation Level syllabus.

❑ Answers to exam questions may require the use of material from more than one section of this syllabus.

❑ All learning objectives in the syllabus are examinable.

❑ The time allowed for the examination is 75 minutes, if given in the candidate's not native language.

❑ The examination shall comprise 40 multiple-choice questions.

❑ The number of points available in an examination is 40.

❑ Each correctly answered question is worth one point.

❑ A score of at least 65% (26 or more points) is required to pass.

Exam Structure 2018

Module	Number of questions	Number of possible points	Passing score (65%)	Exam Length (in minutes)	Exam Length + 25% (in minutes)
Certified Tester Foundation Level	40	40	26	60	75

K-Level	Number of Questions	Question Timing	Total Time by K Level (Approximate)
K1	8	1	8
K2	24	1	24
K3	8	3	24
TOTALS	40		56

Exam Structure 2018

ISTQB® - FOUNDATION LEVEL

Fundamentals of Testing	Testing Throughout the Software Development Lifecycle	Static Testing	Test Techniques	Test Management	Tool Support for Testing
What is Testing?	Software Development Lifecycle Models	Static Testing Basics	Categories of Test Techniques	Test Organisation	Test Tool Considerations
Why is Testing Necessary?	Test Levels	Review Process	Black-box Test Techniques	Test Planning and Estimation	Effective Use of Tools
Seven Testing Principles	Test Types		White-box Test Techniques	Test Monitoring and Control	
Test Process	Maintenance Testing		Experience-based Test Techniques	Configuration Management	
The Psychology of Testing				Risk and Testing	
				Defect Management	

What are K-levels?

A K-level, or Cognitive level, is used to classify learning objectives according to the revised taxonomy from Bloom [Anderson 2001]. ISTQB® uses this taxonomy to design its syllabi examinations.
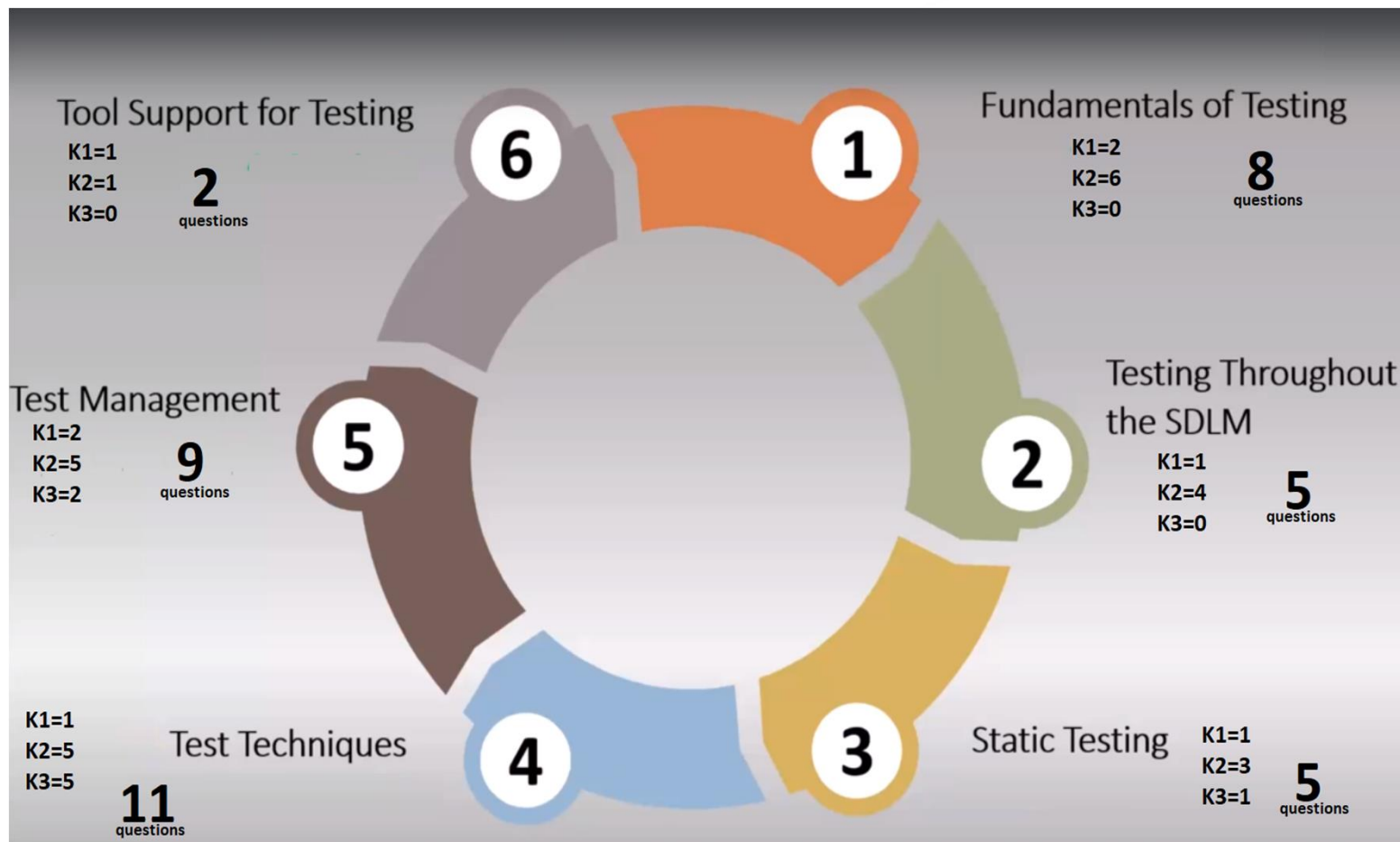
Questions with different K-levels may be awarded with different pre-defined scores to reflect their cognitive level.
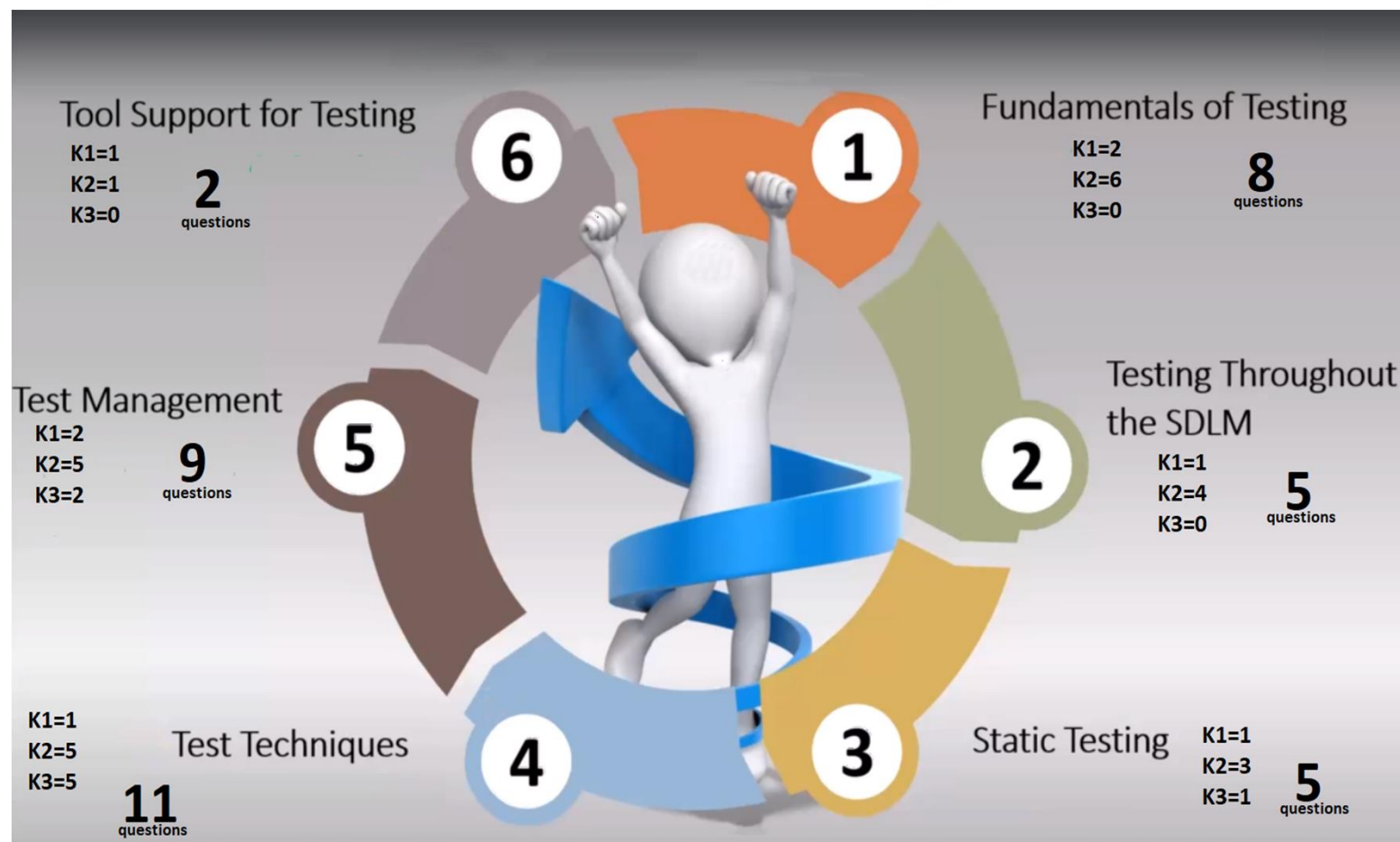
The Foundation exams cover three different K-levels (K1 to K3):

K1 (Remember) = The candidate should remember or recognize a term or a concept.

K2 (Understand) = The candidate should select an explanation for a statement related to the question topic.

K3 (Apply) = The candidate should select the correct application of a concept or technique and apply it to a given context.
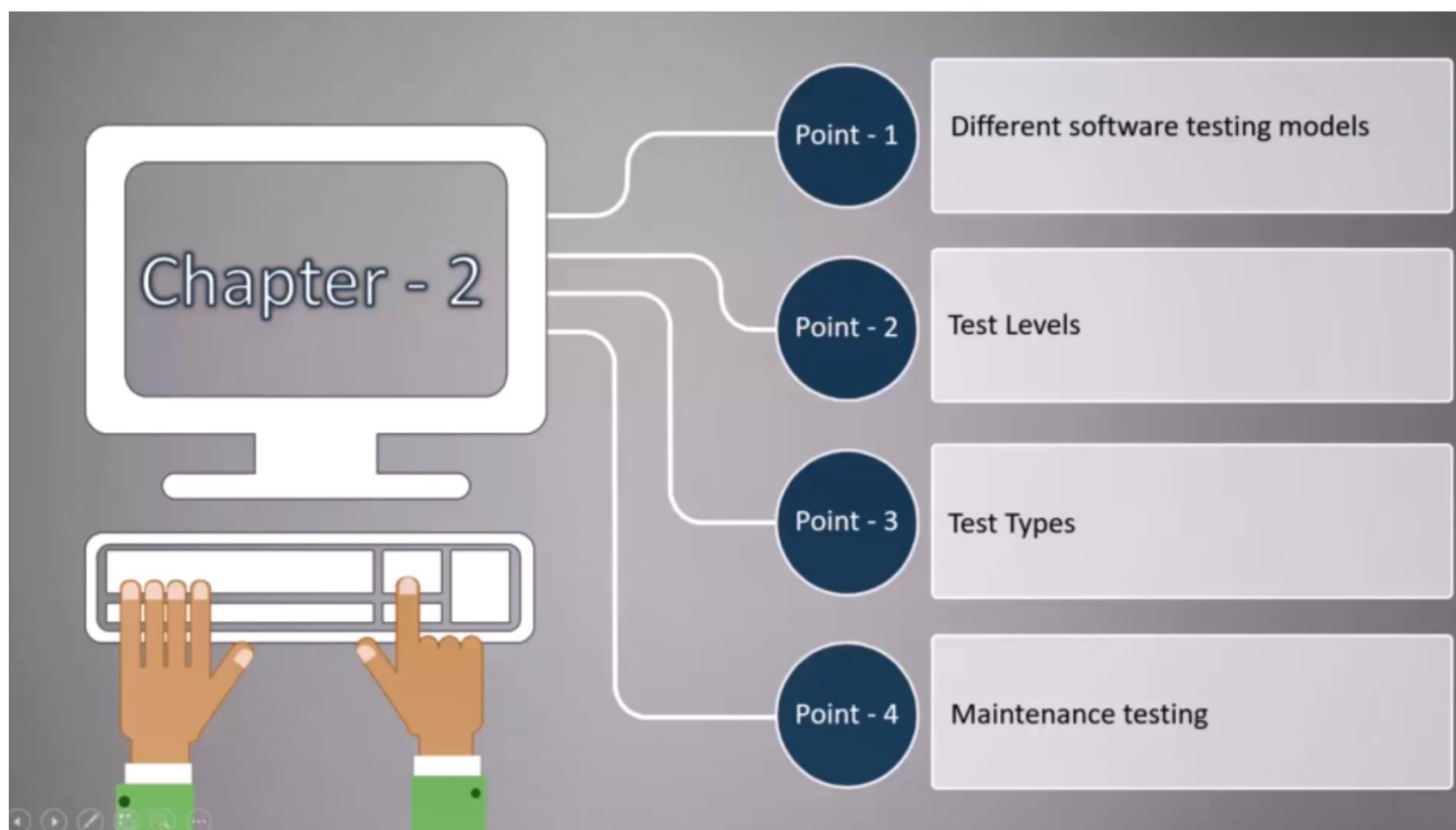
Chapter -4

- Equivalence Partitioning
- Boundary Value Analysis
- Decision Table Testing
- State Transition Testing
- Use Case Testing
- Statement Testing and Coverage

WHAT YOU SHOULD DO

1. Register for the exam first
2. Self-study (group study is preferable)
3. Read both the textbook and the syllabus
4. Refer to the GLOSSARY
5. Do NOT rely on dumps!

6. Understand the structure of the exam
7. Note, revise and teach
8. Be observant
9. Got struck with a question? Don't worry, just move on
10. CAUTION – Online exam takers
11. Take advantage of ISTQB Test Mentor (Courses)

WHAT YOU SHOULD DO

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What To Look For

Specification-Based Test Design Techniques

Structure-Based Test Design Techniques

Experience-Based Test Design Techniques

Review Process

Standards
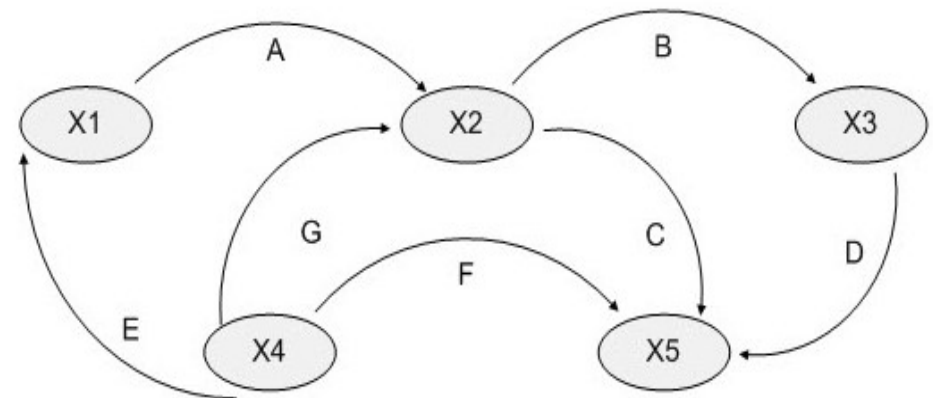
Cyclomatic complexity

Metrics and Measurements

Test Management

DON'T FORGET!

Sample Question 1.

How many test cases are required to cover 100% switch coverage respectively from X2?
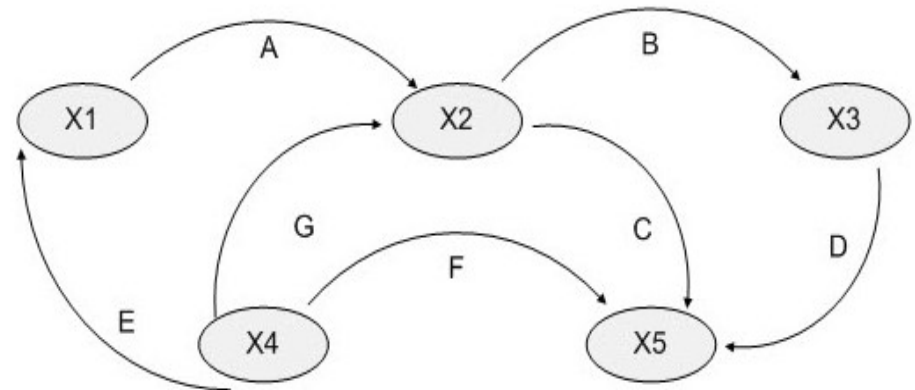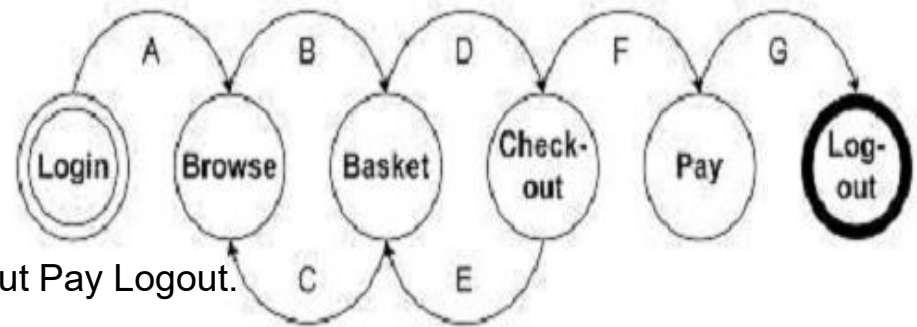
A. 4
B. 1
C. 3
D. 2

Sample Question 1.

How many test cases are required to cover 100% switch coverage respectively from X2?

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

Sample Question 2.

Given the following state transition diagram Which of the following series of state transitions contains an INVALID transition which may indicate a fault in the system design?

A. Login Browse Basket Checkout Basket Checkout Pay Logout.
B. Login Browse Basket Checkout Pay Logout.
C. Login Browse Basket Checkout Basket Logout.
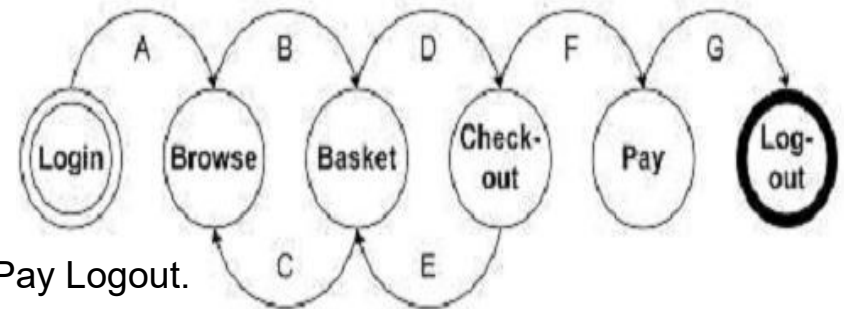D. Login Browse Basket Browse Basket Checkout Pay Logout.

Sample Question 2.

Given the following state transition diagram Which of the following series of state transitions contains an INVALID transition which may indicate a fault in the system design?
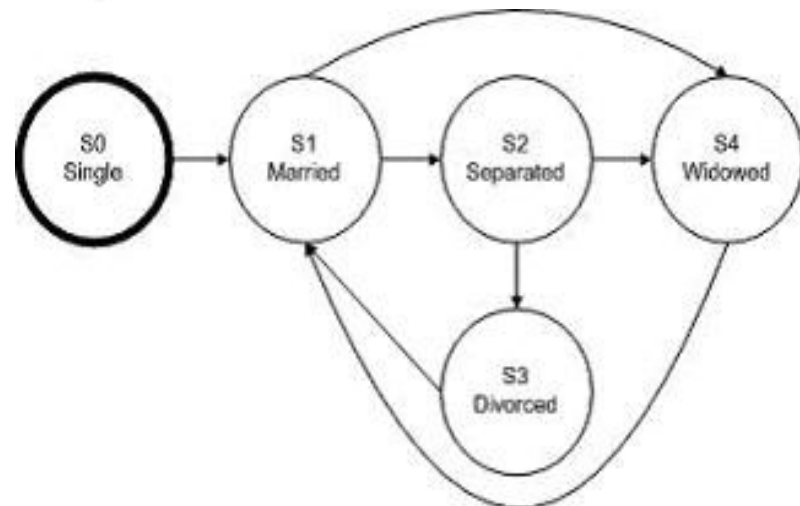

A. Login Browse Basket Checkout Basket Checkout Pay Logout.
B. Login Browse Basket Checkout Pay Logout.
C. Login Browse Basket Checkout Basket Logout.
D. Login Browse Basket Browse Basket Checkout Pay Logout.

Sample Question 3.

Without testing all possible transitions, which test suite will test all marital statuses?

A. SO-S1-S2-S4-S1-S4
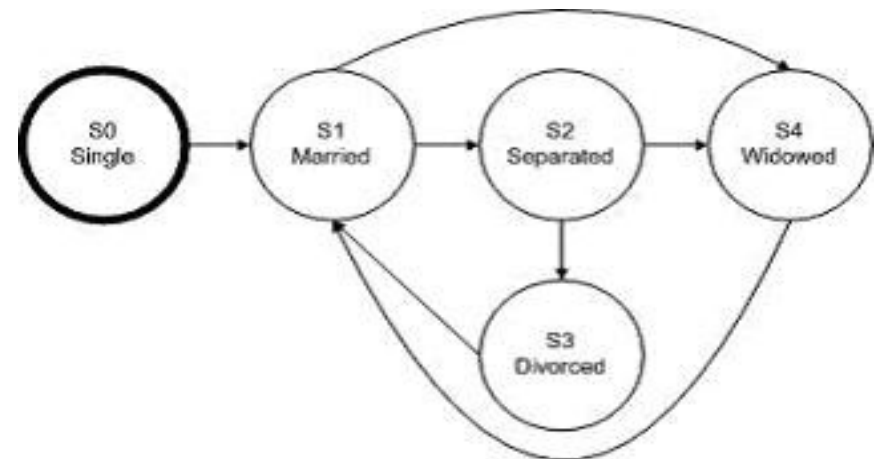B. SO-S1-S2-S3-S1-S2
C. SO-S1-S4-S1-S2-S3
D. SO-S1-S2-S3-S4-S1

Without testing all possible transitions, which test suite will test all marital statuses?

A. SO-S1-S2-S4-S1-S4
B. SO-S1-S2-S3-S1-S2
C. SO-S1-S4-S1-S2-S3
D. SO-S1-S2-S3-S4-S1

Using the diagram below, which test suite will check for ALL valid state transit ions using the LEAST effort?

A. SO-S1-S2-S4-S1-S4-S1-S2-S3-S1
B. SO-S1-S2-S4-S1-S2-S3-S1
C. SO-S1-S4-S1-S2-S3-S1
D. SO-S1-S2-S4-S1-S4-S1-S2-S3

Using the diagram below, which test suite will check for ALL valid state transitions using the LEAST effort?

A. SO-S1-S2-S4-S1-S4-S1-S2-S3-S1
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C. SO-S1-S4-S1-S2-S3-S1
D. SO-S1-S2-S4-S1-S4-S1-S2-S3

Sample Question 5.

Which test suite will check for an invalid transition using the diagram below?

A. S0-S1-S2-S3-S1-S4
B. S0-S1-S4-S1-S2-S3
C. S0-S1-S3-S1-S2-S1
D. S0-S1-S2-S3-S1-S2

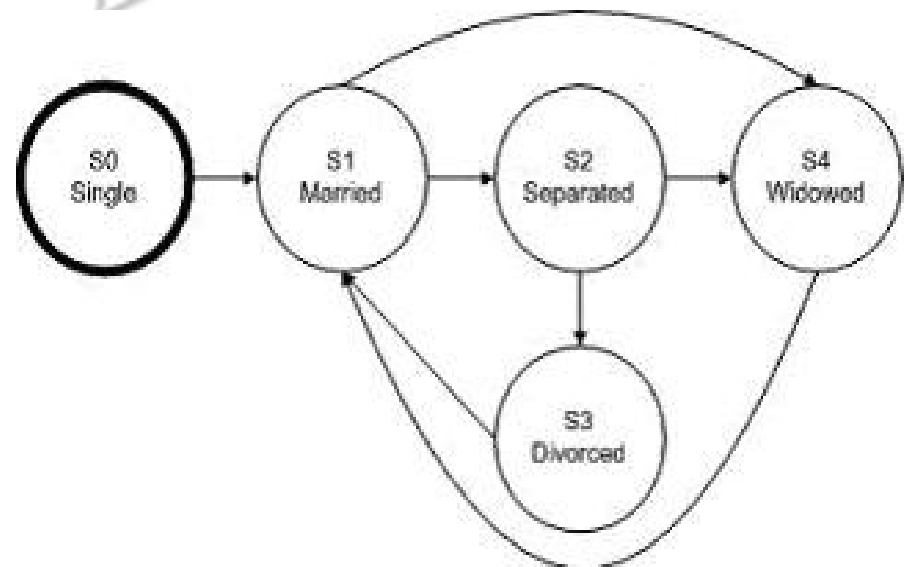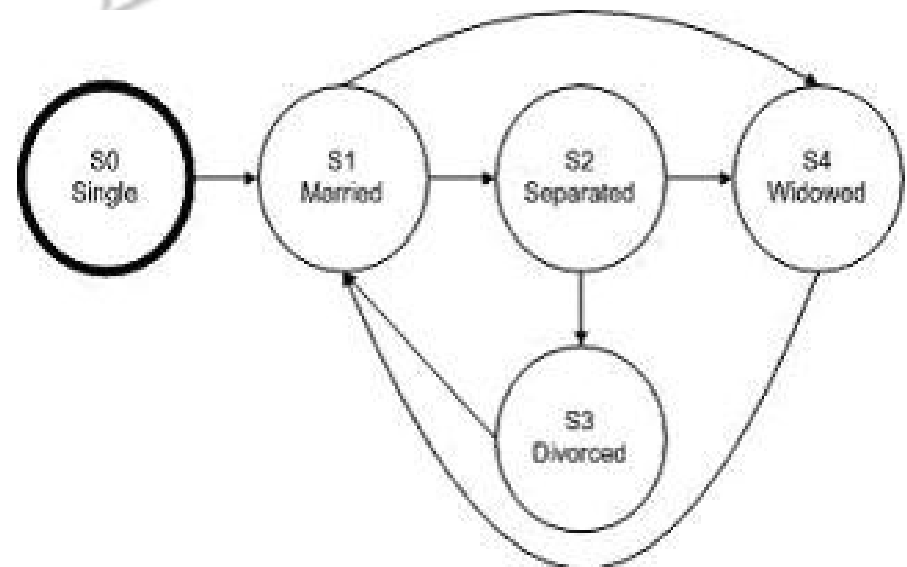**Which test suite will check for an invalid transition using the diagram below?**

A. S0-S1-S2-S3-S1-S4
B. S0-S1-S4-S1-S2-S3
C. S0-S1-S3-S1-S2-S1
D. S0-S1-S2-S3-S1-S2

Sample Question 6.

Using the diagram below, which test suite will uncover invalid state transitions for employee status reporting software?

A. Prospective – Active – Resigned – Active – Terminated – Purged
B. Prospective – Active – On Leave – Active – Resigned – Retired
C. Prospective – Active – Retired – Active – On Leave – Purged
D. Prospective – Active – On Leave – Active – Retired – Active

Sample Question 6.

Using the diagram below, which test suite will uncover invalid state transitions for employee status reporting software?
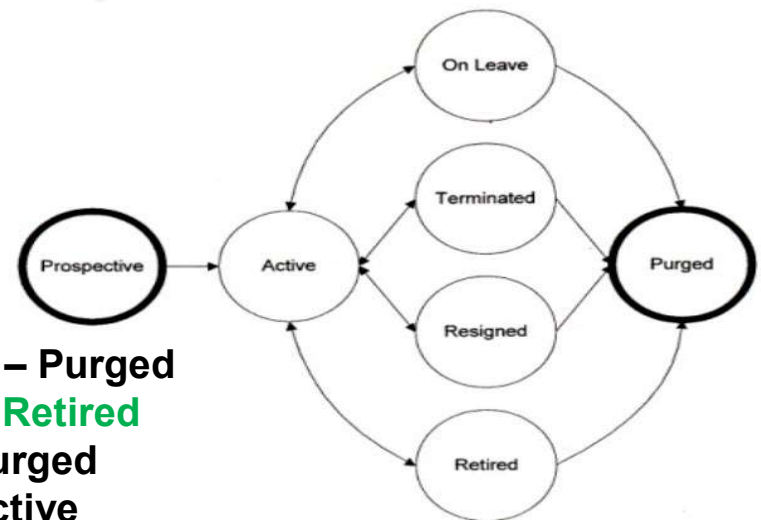
A. Prospective – Active – Resigned – Active – Terminated – Purged
B. Prospective – Active – On Leave – Active – Resigned – Retired
C. Prospective – Active – Retired – Active – On Leave – Purged
D. Prospective – Active – On Leave – Active – Retired – Active

Sample Question 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. When the temperature is more than 21. Identify the Equivalance values which belong to the same class.

A. 12,16,22
B. 24,27,17
C. 22,23,24
D. 14,15,19

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C. 22,23,24
D. 14,15,19

An input field takes the year of birth between 1900 and 2004

The boundary values for testing this field are

A. 0,1900,2004,2005
B. 1900, 2004
C. 1899,1900,2004,2005
D. 1899, 1900, 1901,2003,2004,2005

Sample Question 8.

An input field takes the year of birth between 1900 and 2004

The boundary values for testing this field are

A. 0,1900,2004,2005
B. 1900, 2004
C. 1899,1900,2004,2005
D. 1899, 1900, 1901,2003,2004,2005

Sample Question 9.

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, 10000

Sample Question 9.

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, 10000

Sample Question 10.

In a system designed to work out the tax to be paid: 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. $5800; $28000; $32000
B. $0; $200; $4200
C. $5200; $5500; $28000
D. $28001; $32000; $35000

Sample Question 11.

Which set of test data demonstrates equivalence partitioning to check whether a customer is a teenager or not?

A. 10, 15 and 19 years
B. 13, 19 and 25 years
C. 13, 16 and 19 years
D. 12, 13 and 20 years

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In a flight reservation system, the number of available seats in each plane model is an input. A plane may have any positive number of available seats, up to the given capacity of the plane. Using Boundary Value analysis, a list of available seat values were generated. Which of the following lists is correct?

A. 1, 2, capacity -1, capacity, capacity plus 1
B. 0, 1, capacity, capacity plus 1
C. 0, 1, 2, capacity plus 1, a very large number
D. 0, 1, 10, 100, capacity, capacity plus one

Sample Question 12.

In a flight reservation system, the number of available seats in each plane model is an input. A plane may have any positive number of available seats, up to the given capacity of the plane. Using Boundary Value analysis, a list of available seat values were generated. Which of the following lists is correct?

A. 1, 2, capacity -1, capacity, capacity plus 1
B. 0, 1, capacity, capacity plus 1
C. 0, 1, 2, capacity plus 1, a very large number
D. 0, 1, 10, 100, capacity, capacity plus one

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

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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

Using an error guessing test design technique to convert temperature (Celsius to Fahrenheit, and Fahrenheit to Celsius), experienced testers will MOST LIKELY use which set of test data?

A. -1, 0, 89.6 and 212
B. -40, 37.78, and 100
C. -1, 0, 1 and 37.78
D. -40, 0, 32 and 100

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A. -1, 0, 89.6 and 212
B. -40, 37.78, and 100
C. -1, 0, 1 and 37.78
D. -40, 0, 32 and 100

Sample Question 15.

The standard that gives definitions of testing terms is:

A. ISO/IEC 12207
B. BS7925-1
C. BS7925-2
D. ANSI/IEEE 829
E. ANSI/IEEE 729

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Which of the following is NOT a standard related to testing?

A. IEEE829
B. IEEE610
C. BS7925-1
D. BS7925-2

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Which of the following is the component test standard?

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B. IEEE 610
C. BS7925-1
D. BS7925-2

Sample Question 17.

Which of the following is the component test standard?

A. IEEE 829
B. IEEE 610
C. BS7925-1
D. BS7925-2

Cause effect graphing is related to the standard

A. BS7799
B. BS 7925/2
C. ISO/IEC 926/1
D. ISO/IEC 2382/1

Cause effect graphing is related to the standard

A. BS7799
B. BS 7925/2
C. ISO/IEC 926/1
D. ISO/IEC 2382/1

Sample Question 19.

Given the following fragment of code, how many tests are required for 100% decision coverage?

```
if width > length
then
biggest_dimension = width
if height > width
then
biggest_dimension = height
end_if
else
biggest_dimension = length
if height > length
then
biggest_dimension = height
end_if
end_if
```

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

Sample Question 19.

Given the following fragment of code, how many tests are required for 100% decision coverage?

```
if width > length
then
biggest_dimension = width
if height > width
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end_if
else
biggest_dimension = length
if height > length
then
biggest_dimension = height
end_if
end_if
```

A. 3

B. 4

C. 2

D. 1

Sample Question 20.

The above diagram represents the following paths through the code.

A. vwy

B. vwz

C. vxy

D. vxz

What is the MINIMUM combination of paths required to provide full statement coverage?
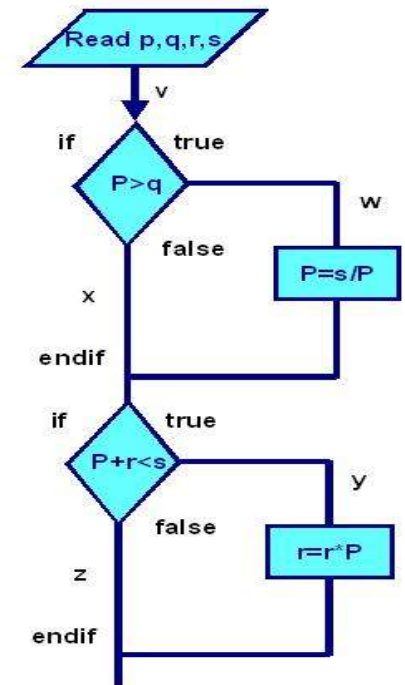
A. A

B. ABD

C. ABCD

D. ACD

Sample Question 20.

The above diagram represents the following paths through the code.

A. vwy

B. vwz

C. vxy

D. vxz

What is the MINIMUM combination of paths required to provide full statement coverage?

A. A

B. ABD

C. ABCD

D. ACD
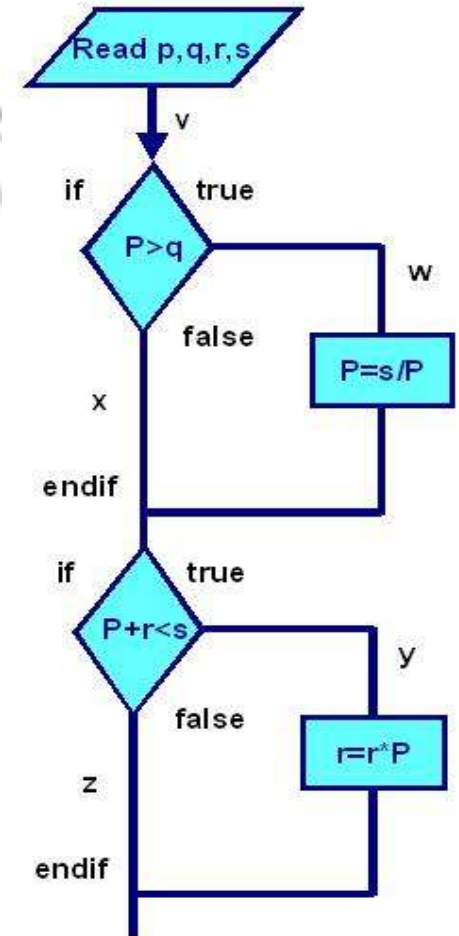
How many test cases are needed to achieve 100% statement coverage?

```
if ((temperature < 0) or
(temperature > 100)) {
alert ("DANGER");
if ((speed > 100) and (load <= 50)) {
speed = 50;
}
} else {
check = false;
}
```

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

Sample Question 21.

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

```
if ((temperature < 0) or
(temperature > 100)) {
alert ("DANGER");
if ((speed > 100) and (load <= 50)) {
speed = 50;
}
} else {
check = false;
}
```

A. 5

B. 4

C. 2

D. 3

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

```
If (p = q) {
s = s + 1;
if (a < S) {
t = 10;
}
} else if (p > q) {
t = 5;
}
```

A. 3

B. 6

C. 5

D. 4

Sample Question 22.

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

```
If (p = q) {
s = s + 1;
if (a < S) {
t = 10;
}
} else if (p > q) {
t = 5;
}
```

A. 3
B. 6
C. 5
D. 4

Sample Question 23.

Which combination of p, q and r values will ensure 100 % statement coverage?

```
if (p = q) {
r = r + 1;
if (r < 5) {
s = 10;
}
} else if (p > q) {
s = 5;
}
```

A. p=5,q=5,r=5, p=5,q=4,r=-1
B. p=5,q=1,r=3, p=4,q=4,r=5
C. p=3,q=3,r=3, p=-1,q=-2,r=3
D. p=-1,q=-1,r=0, p= -2, q= -1,r=0

Sample Question 23.

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```
if (p = q) {
r = r + 1;
if (r < 5) {
s = 10;
}
} else if (p > q) {
s = 5;
}
```

A. p=5,q=5,r=5, p=5,q=4,r=-1
B. p=5,q=1,r=3, p=4,q=4,r=5
C. p=3,q=3,r=3, p=-1,q=-2,r=3
D. p=-1,q=-1,r=0, p= -2, q= -1,r=0

The principle of Cyclomatic complexity, considering L as edges or links, N as nodes, P as independent paths

A. L-N +2P
B. N-L +2P
C. N-L +P
D. N-L +P

The principle of Cyclomatic complexity, considering L as edges or links, N as nodes, P as independent paths

A. L-N +2P
B. N-L +2P
C. N-L +P
D. N-L +P

DDP formula that would apply for calculating DDP for the last level of testing prior to release to the field is

A. DDP = {Defects (Testers) - Defects (Field)} / Defects (Testers)
B. DDP = {Defects (Testers) + Defects (Field)} / Defects (Testers)
C. DDP = Defects (Testers) / {Defects (Field) + Defects (Testers)}
D. DDP = Defects (Testers) / {Defects (Field) – Defects (Testers)}

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B. DDP = {Defects (Testers) + Defects (Field)} / Defects (Testers)
C. DDP = Defects (Testers) / {Defects (Field) + Defects (Testers)}
D. DDP = Defects (Testers) / {Defects (Field) – Defects (Testers)}

What is the name of a temporary software component that is used to call another component for testing purposes?

A. Domain
B. Use case
C. Stub
D. Drive

What is the name of a temporary software component that is used to call another component for testing purposes?

A. Domain
B. Use case
C. Stub
D. Drive

Sample Question 28.

A test plan included the following clauses among the exit criteria:

- System test shall continue until all significant product risks have been covered to the extent specified in the product risk analysis document.
- System test shall continue until no must-fix defects remain against any significant product risks specified in the product risk analysis document.

During test execution, the test team detects 430 must-fix defects prior to release and all must-fix defects are resolved. After release, the customers find 212 new defects, none of which were detected during testing. This means that only 67% of the important defects were found prior to release, a percentage which is well below average in your industry. You are asked to find the root cause for the high number of field failures. Consider the following list of explanations:

I. Not all the tests planned for the significant product risks were executed.

II. The organization has unrealistic expectations of the percentage of defects that testing can find.

III. A version-control issue has resulted in the release of a version of the software that was used during early testing.

IV. The product risk analysis failed to identify all the important risks from a customer point of view.

V. The product risk analysis was not updated during the project as new information became available.

Which of the following statements indicate which explanations are possible root causes?

A. II, III and IV are possible explanations, but I and V are not possible.

B. All five are possible explanations.

C. I, IV and V are possible explanations, but II and III are not possible.

D. III, IV and V are possible explanations, but I and II are not possible.

Sample Question 28.

A test plan included the following clauses among the exit criteria:

- System test shall continue until all significant product risks have been covered to the extent specified in the product risk analysis document.
- System test shall continue until no must-fix defects remain against any significant product risks specified in the product risk analysis document.

During test execution, the test team detects 430 must-fix defects prior to release and all must-fix defects are resolved. After release, the customers find 212 new defects, none of which were detected during testing. This means that only 67% of the important defects were found prior to release, a percentage which is well below average in your industry. You are asked to find the root cause for the high number of field failures. Consider the following list of explanations:

I. Not all the tests planned for the significant product risks were executed.

II. The organization has unrealistic expectations of the percentage of defects that testing can find.

III. A version-control issue has resulted in the release of a version of the software that was used during early testing.

IV. The product risk analysis failed to identify all the important risks from a customer point of view.

V. The product risk analysis was not updated during the project as new information became available.

Which of the following statements indicate which explanations are possible root causes?

A. II, III and IV are possible explanations, but I and V are not possible.

B. All five are possible explanations.

C. I, IV and V are possible explanations, but II and III are not possible.

D. III, IV and V are possible explanations, but I and II are not possible.

Sample Question 29.

Given the following sets of test management terms (v-z), and activity descriptions (1-5), which one of the following best pairs the two sets?

v – Test control
w – Test monitoring
x – Test estimation
y – Incident management
z – Configuration control

1 – Calculation of required test resources
2 – Maintenance of record of test results
3 – Re-allocation of resources when tests overrun
4 – Report on deviation from test plan
5 – Tracking of anomalous test results

A. v-3,w-2,x-1,y-5,z-4
B. v-2,w-5,x-1,y-4,z-3
C. v-3,w-4,x-1,y-5,z-2
D. v-2,w-1,x-4,y-3,z-5

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A. v-3,w-2,x-1,y-5,z-4
B. v-2,w-5,x-1,y-4,z-3
C. v-3,w-4,x-1,y-5,z-2
D. v-2,w-1,x-4,y-3,z-5