

! Correct answers are no longer available.

Score for this quiz: **74** out of 100

Submitted Oct 3 at 4:05pm

This attempt took 65 minutes.

2 / 2 pts

Question 1

Which technique answers the question: "Are we building the right product?"

- Verification
- Validation

Correct! Validation checks that what we are developing is the right product.

5 / 5 pts

Question 2

Question 2

Consider the following specification for a program:

A computerized letter is to be sent to high school seniors telling them their graduation status. There are three inputs.

The first input is a 10 digit identifying number (ID Number).

The second input is the student's grade point average (gpa) which is a real number.

The third input is a real number indicating the balance of the student's account.

For students with $0 \leq gpa < 1.0$ a letter is output informing the student that they will not graduate. For $1.0 \leq gpa \leq 3.0$ a letter is output informing the student that they have met the requirements for graduation. For $3.0 \leq gpa < 3.7$ a letter is output informing the student that they will graduate with honors. For $3.7 \leq gpa \leq 4.0$ a letter is output informing the student they will graduate with highest honors. The letter also contains the balance of the student's account.

Which of the following best describes the set of equivalence partitions for gpa.

gpa < 0 (I)

gpa > 4 (I)

$0 \leq gpa < 1.0$ (I)

$1.0 \leq gpa < 3.0$ (V)

$3.0 \leq gpa < 3.7$ (V)

$3.7 \leq gpa \leq 4.0$ (V)

gpa < 0 (I)

gpa > 4 (I)

$1.0 \leq gpa < 3.0$ (V)

$3.0 \leq gpa < 3.7$ (V)

$3.7 \leq gpa \leq 4.0$ (V)

gpa < 0 (I)

gpa > 4 (I)

$0 \leq gpa < 1.0$ (V)

$1.0 \leq gpa < 3.0$ (V)



For $3.0 \leq gpa < 3.7$ a letter is output informing the student that they will graduate with honors. For $3.7 \leq gpa \leq 4.0$ a letter is output informing the student they will graduate with highest honors. The letter also contains the balance of the student's account.

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$3.0 \leq gpa < 3.7$ (V)

$3.7 \leq gpa \leq 4.0$ (V)

gpa < 0 (I)

gpa > 4 (I)

$1.0 \leq gpa < 3.0$ (V)

$3.0 \leq gpa < 3.7$ (V)

$3.7 \leq gpa \leq 4.0$ (V)

gpa < 0 (I)

gpa > 4 (I)

$0 \leq gpa < 1.0$ (V)

$1.0 \leq gpa < 3.0$ (V)

$3.0 \leq gpa < 3.7$ (V)

$3.7 \leq gpa \leq 4.0$ (V)

gpa < 0 (I)

gpa > 4 (I)

$0 \leq gpa \leq 4$ (V)

Question 3

5 / 5 pts

Given 4 inputs: P1 with values A,B; P2 with value C, P3 with values F, X, and P4 with values G, H which of the following tests provides pairwise combination testing?

G	B	F	C
H	A	X	C
H	B	F	C

G	A	F	C
G	B	F	C
H	A	X	C
H	B	F	C

G	A	F	C
G	B	X	C
H	A	X	C
H	B	F	C

G	A	F	C
G	B	F	C
H	A	X	C

Question 4

You are asked to test a program which calculates the amount of medicine that would be given to a patient using the following rules.

- Patients with **age less than or equal to 30**; with **tcV level less than or equal to 3.5** and **YTF negative**; receives **1.0mg** of the medicine.
- Patients with **age less than or equal to 30**; with **tcV level less than or equal to 3.5** and **YTF positive**; receives **2.0mg** of the medicine
- Patients with **age less than or equal to 30**; with **tcV level greater than 3.5** and **YTF negative**; receives **no** medicine
- Patients with **age less than or equal to 30**; with **tcV level greater than 3.5** and **YTF positive**; receives **1.0mg** medicine
- Patients with **age less than or equal to 50**; with **tcV level less than or equal to 3.5** and **YTF negative**; receives **2.0mg** of the medicine.
- Patients with **age less than or equal to 50**; with **tcV level less than or equal to 3.5** and **YTF positive**; receives **2.5mg** of the medicine.
- Patients with **age less than or equal to 50**; with **tcV level greater than 3.5** and **YTF negative**; receives **no** medicine
- Patients with **age less than or equal to 50**; with **tcV level greater than 3.5** and **YTF positive**; receives **2.0mg** of the medicine.
- Patients with **age less than or equal to 70**; regardless of tcV or YTF levels; receives no medicine.

If one were to develop a **decision table** for testing this program, how many test cases / columns would be needed?

12

9

8

4

Question 5

5 / 5 pts

You are asked to test a program which calculates the amount of medicine that would be given to a patient using the following rules.

- Patients with **age less than or equal to 30**; with **tcV level less than or equal to 3.5** and **YTF negative**; receives **1.0mg** of the medicine.
- Patients with **age less than or equal to 30**; with **tcV level less than or equal to 3.5** and **YTF positive**; receives **2.0mg** of the medicine
- Patients with **age less than or equal to 30**; with **tcV level greater than 3.5** and **YTF negative**; receives **0.5mg medicine**
- Patients with **age less than or equal to 30**; with **tcV level greater than 3.5** and **YTF positive**; receives **1.0mg** medicine
- Patients with **age less than or equal to 50**; with **tcV level less than or equal to 3.5** and **YTF negative**; receives **2.0mg** of the medicine.
- Patients with **age less than or equal to 50**; with **tcV level less than or equal to 3.5** and **YTF positive**; receives **2.5mg** of the medicine.
- Patients with **age less than or equal to 50**; with **tcV level greater than 3.5** and **YTF negative**; receives **0.5mg medicine**
- Patients with **age less than or equal to 50**; with **tcV level greater than 3.5** and **YTF positive**; receives **2.0mg** of the medicine.
- Patients with **age less than or equal to 70**; regardless of tcV or YTF levels; receives **0.5mg medicine**

If one were to develop a **decision tree** for testing this program, how many test cases would be needed?

12

9

8

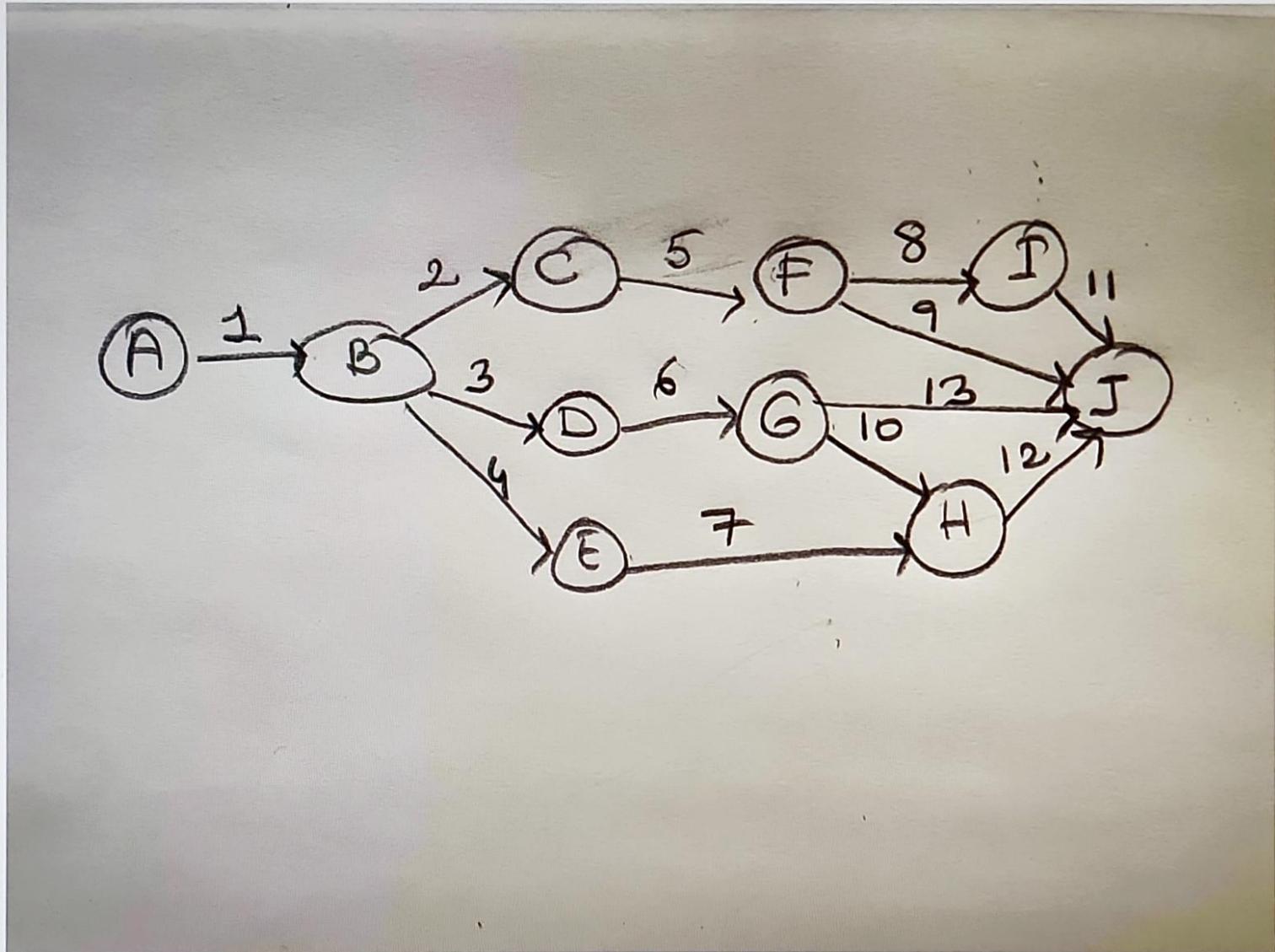
18

Question 6

5 / 5 pts

Given the state testing diagram below, how many test sequences would one find in the state testing tree?

You may assume "A" is the start state and "J" is the terminal state.



- 3
- 4
- 13
- 5

Question 7

Which one of the following actions is considered a classic testing mistake?

- Starting testing early
- Creating a regression test suite that verifies and validates changes in the code
- Focusing on usability issues

Testers ***must*** focus on usability issues, so this is not a classic testing mistake. Please review "Classic Testing Mistakes: Review of Reading" in Week 1.

- Attempting to automate all tests

Question 8

Which of the following best describes exploratory testing?

- Testing tours are used to ensure 100% functional and code coverage.
- Exploratory testing does not require the use of a test oracle.
- All tests are not created in advance and new tests are added during the testing process.
- All tests are created in advance and sources of errors are further explored.

Question 9

What is an advantage of model based test development?

- Model based test development executes the system
- If there is a change in the model, tests will remain the same
- If there is a change in the model, new tests can automatically be generated
- There are a set number of test generation criteria we can use

Question 10

0 / 5 pts

Assume we are testing a function with 3 variables:

Variable X: has values 'a', and 'b'

Variable Y: has values 'c' and 'd'

Variable Z: has values 'e', 'f' and 'g'

What is the total 2-way variable value configuration coverage achieved by the following tests:

X='a'; Y='c'; Z='e'

X='a'; Y='c'; Z='f'

X='a'; Y='d'; Z='e'

X='b'; Y='d'; Z='f'

X='b'; Y='d'; Z='g'

6/8

8/12

12/16

11/16

Question 11

2 / 2 pts

What is fuzz testing used for the *most often*?

- To detect vulnerabilities in a system

Correct! Fuzz testing is performed to detect vulnerabilities in software applications.

To determine how output changes based on inputs

To create test cases based on defect taxonomies

To explore software for errors using a pair of testers

Question 12

2 / 2 pts

In defect based testing, what is used to identify the test cases to run?

- Inspection results of the code
- Defect taxonomy

Duration of the test cases

Test cases that require fewer resources to execute

2 / 2 pts

Question 13

What are some of the steps taken during exploratory testing? *Select all that apply.*

- Develop test cases driven from previous test results

Develop test cases when necessary or when needed in an ad-hoc manner.

Plan on test cases to develop

- Learn as much as possible about the application prior to the exploration

Question 14

Consider testing utilizing equivalence partitioning a program with the following 2 inputs and equivalence partitions? Which of the following describes the minimum number of tests needed?

Input 1: A

10..100 (V)

101.. 500 (V)

<10 (I)

> 500 (I)

Input 2: B

40..65 (V)

66.. 70 (V)

71.. 80 (V)

81.. 90 (V)

<40 (I)

>90 (I)

2 valid tests and 4 invalid tests

2 valid tests and 2 invalid tests

3 valid tests and 4 invalid tests

4 valid tests and 4 invalid tests

3 valid tests and 4 invalid tests

Question 15

A student can score a minimum of 70 points and a maximum of 100 points on an exam. Which one of these testes can be used for boundary level testing?

- Student score = {69, 101}
- Student score = {70, 85, 100}
- Student score = {70, 100}
- Student score = {69, 70, 100, 101}

rect

Question 16

0 / 2 pts

In the test development process, what is the analogous activity of coding during the software development process?

- Writing test cases
- Writing test objectives

Incorrect. Writing test objectives during the test development process is similar to requirement gathering during the software development process. Please review "Software Life Cycle" in Week 1.

- Designing test cases
- Creating a test execution schedule

Question 17

Which central beliefs are part of the agile software development manifesto? *Select all that apply.*

- Sprints and daily standup meetings
- Detailed project documentation
- Customer collaboration
- Working software

Question 18

0 / 2 pts

During which testing level are all the components, including the hardware and software of a system, brought together and tested with other components?

- System testing
- Integration testing

Incorrect. Integration is about taking functioning units or components and integrating them within a system. The emphasis is on higher level functions and features, so things are more abstract, but we have not quite gotten to the level of testing ***all*** components of a system quite yet, such as hardware/software integration. Please review "Testing Levels and Types" in Week 1.

- Beta testing
- Acceptance testing

Question 19

Suppose that there is a program that deals with four inputs that are dependent on each other: A, B, C and D. Assume A has five different values, B has four different values, C has ten different values, and D has two different values. According to the decision table, how many test cases do we need to develop?

- 400 test cases
- 20 test cases
- 21 test cases
- 200 test cases

Question 20

Suppose that package rates are calculated based on the size of the package (big or small) and the distance of the package's journey (long, medium, short). Big packages with a short distance costs \$20. Small packages with a medium distance cost \$10 and with a short distance cost \$5. Any other combination is not allowed. Which decision table *best* captures these requirements?

	1	**2**	**3**	**4**	**5**	**6**
Big	***X***	***X***	**X**		***X***	***X***
Small				***X***	***X***	***X***
Long	***X***			**X**		
Medium		***X***			***X***	
Short			***X***			***X***
\$20				***X***		
\$10					***X***	
\$5						***X***
Not Allowed	***X***	***X***		***X***		

	1	**2**	**3**	**4**	**5**	**6**
Big	***X***	***X***	**X**			
Small				***X***	***X***	***X***
Long	***X***			**X**		
Medium		***X***			***X***	
Short			**X**			***X***
\$20						
\$10					***X***	
\$5						***X***
Not Allowed	***X***	***X***	**X**	***X***		

	1	**2**	**3**	**4**	**5**	**6**
Big	**X**	***X**	**X**			
Small				**X**	***X**	***X**
Long	**X**			**X**		
Medium		**X**			**X**	
Short			**X**			**X**
\$20	**X**		**X**			
\$10					**X**	
\$5						**X**
Not Allowed		**X**		**X**		

Question 21

Suppose that you have four inputs: P1 with values X,Y; P2 with value Z; P3 with values A,B; and P4 with values C,D,E. Given this information, which table contains the correct tests for a pairwise combination design of experiments?

P1	**P3**	**P4**
---	---	---
X	**A**	**C**
Y	**B**	**C**
X	**B**	**E**
Y	**A**	**E**
X	**B**	**E**
Y	**A**	**E**

P1	**P2**	**P3**	**P4**
---	---	---	---
X	**Z**	**A**	**C**
Y	**Z**	**B**	**C**
X	**Z**	**B**	**D**
Y	**Z**	**A**	**E**

P1	**P2**	**P3**	**P4**
---	---	---	---
X	**Z**	**A**	**X**
Y	**Z**	**B**	**X**
X	**Z**	**A**	**D**
Y	**Z**	**B**	**D**
X	**Z**	**A**	**E**
Y	**Z**	**B**	**E**

P1	**P2**	**P3**	**P4**
---	---	---	---
X	**Z**	**A**	**C**
Y	**Z**	**B**	**C**
X	**Z**	**B**	**D**
Y	**Z**	**A**	**D**
X	**Z**	**B**	**E**
Y	**Z**	**A**	**E**

Question 22

Which testing technique is used when there is a test oracle problem?

- Metamorphic Testing
- Mutation Testing
- Defect-based Testing
- Fuzz Testing

Question 23

Consider this code:

```
read (w, x, y, z)  
if x > 20 and y > 4  
then x = 10  
else x = 20  
endif;  
if z < 50 and w > 10  
then y = 10  
else y = 20  
endif;
```

Given this code, how many test cases are needed to achieve 100% decision condition coverage?

- 6
- 2
- 3
- 8

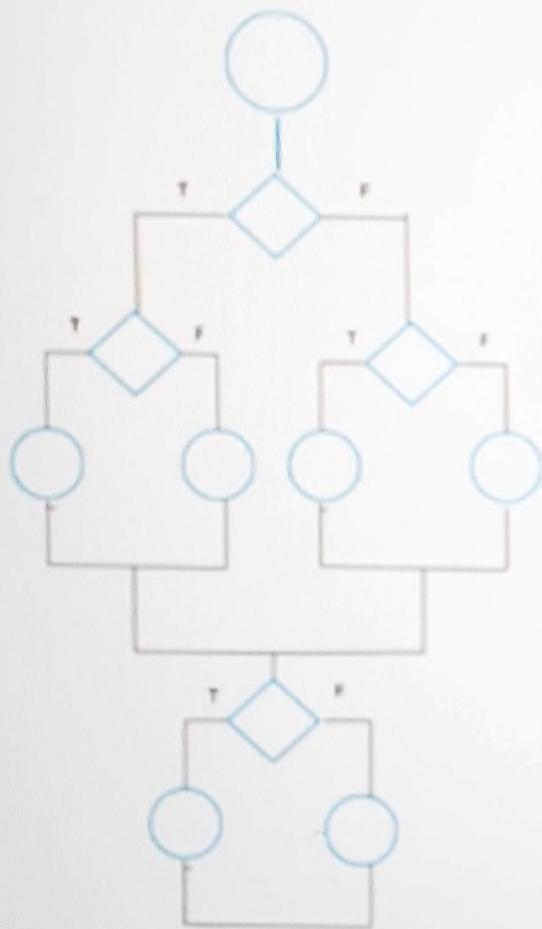
Incorrect. Each branch is not traversed at least once by eight test cases. Please review "Control Flow Coverage Levels" in Week 4.

Question 24

Original Score: 5 / 5 pts Regraded Score: 5 / 5 pts

! This question has been regraded.

Which set of paths provides possible basis paths for this control flow diagram?



- TTT, FTT, TFT, TTF, FTF
- TTT, FTT, FFT, FFF, TTF
- FFF, FTF, FFT, TFF, TFT
- FFF, TFT, FFT, TTF, FTT
- correct

Question 25

0 / 5 pts

Consider this code:

If ($x \leq 0$) or ($y \leq 0$) (0)

then

$x = x_2$ (1)

$y = y_2$

else

$x = x + 1$ (2)

endif

if ($x < 1$) or ($y < 1$)

then

$x = x + 1$ (3)

$y = y + 1$

else

$x = x - 1$ (4)

$y = y - 1$

endif

Given this code, what is the correct path condition representation for the False True path?

- $[(x_0 > 0) \text{ and } (y_0 > 0)] \cap [(x_0 \leq 0) \text{ and } (y_0 \leq 0)]$

Incorrect. Every variable defined is not tested in each of the different places that it ultimately is used.
Please review "Data Flow Testing" in Week 4.

- $[(x_0 \leq 0)] \cap [(x_0 > 0) \text{ or } (y_0 > 0)] \cap [((x_0 \geq 0) \text{ or } (y_0 \geq 0))]$

- $[(x_0 > 0) \text{ or } (y_0 > 0)] \cap [(x_0 \geq 0) \text{ and } (y_0 \geq 0)]$

- $[(x_0 > 0) \text{ and } (y_0 > 0)] \cap [((x_0 \leq 0) \text{ or } (y_0 \leq 0))]$

Question 26

Use the information provided in figure to calculate the DU paths. Based on the DU paths, what coverage do the given test cases provide?

$$A = 3; B = 2$$

$$A = 6; B = 5$$

Get a, b
X = 0

} Node 1

If $a \geq 5$ (Predicate I)

Then $c = x + 3$ (Node 2)

Else $c = b + 2$ (Node 3)

If $b < 4$ (Predicate II)

Then $b = c + 4$ (Node 4)

Else $x = b + 2$ (Node 5)

3/7

6/7

5/7

4/7

Question 27

Consider this code:

if A > B then

exchange A and B:

endif

if B > C then

exchange B and C:

endif

What is the cyclomatic complexity of this code? (Note: Express your answer as a number ONLY. For example 1, 2, 3, etc.)