

Question 2

1 pts

Which of the following statements are FALSE about white box testing?

X1 It uses knowledge of the source code

X2 It can be used to ensure every path of the code is executed at least once

X3 It guarantees to find all execution faults

X4 It can be used to test code that is rarely executed when running a program with typical data

☒ X3 only

☐ X1 and X2 only

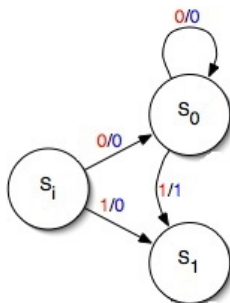
☐ X1, X2, X3 and X4 only

☒ X1, X2 and X4 only

☐ X1 only

Question 4

1 pts



What best describes the image shown in the figure above?

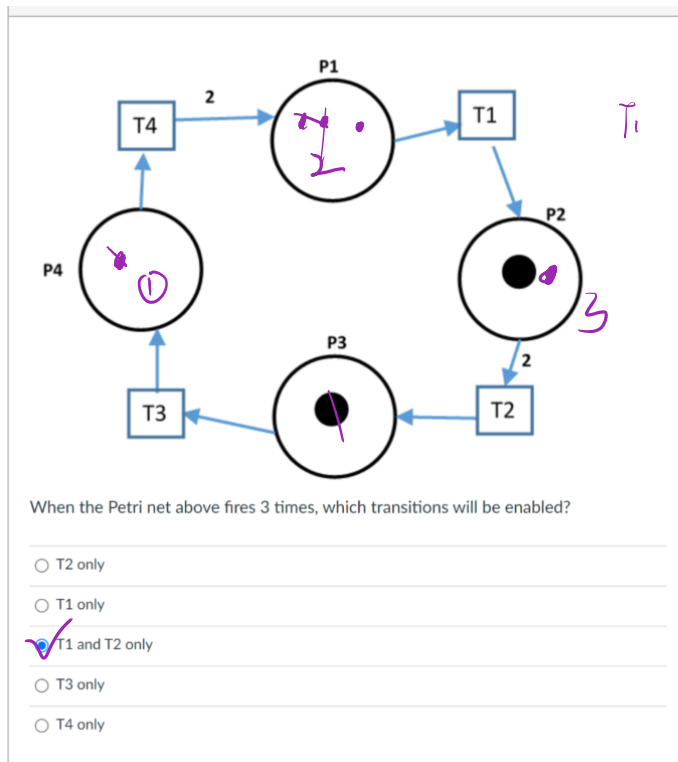
☒ Mealy machine

☐ Finite state automaton

☐ Moore machine

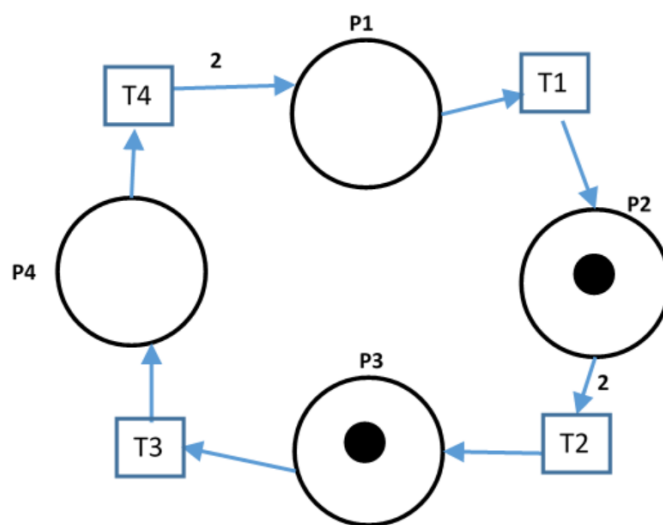
☐ State transition diagram

☐ State chart



Question 20

1 pts



Question 22

1 pts

Which of the following statements are TRUE for incremental development?

- X1 Customer value can be delivered with each increment so system functionality is available earlier
- X2 Early increments act as a prototype to help elicit requirements for later increments
- X3 Lower risk of overall project failure
- X4 The highest priority system services tend to receive the most testing

- ☐ X1 and X2 only
- ☐ X1, X2 and X3 only
- ☒ X1, X2, X3 and X4
- ☐ X2, X3 and X4 only
- ☐ X1, X3 and X4 only

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Question 23

1 pts

Which of the following models the user's external view and interaction with the system?

- ☐ Class diagrams
- ☒ Interaction diagrams
- ☐ All of the above
- ☒ Use case diagrams
- ☐ State chart diagrams

Next ►

Question 18**1 pts**

Match the non-functional requirement to the appropriate measure.

Reliability

Rate of failure occurrence



Ease of use

Training time



Portability

Number of target systems



Next ▶

Question 24**1 pts**

Which of the following are non-functional requirements?

(select all correct answers)

- ✓ ☒ All encryption of data should use DES
- ✓ ☒ The system should be secure
- ✓ ☒ The system must comply with the Data Protection Act
- ✓ ☐ The password should contain both upper and lower case letters
- ✓ ☒ The system should have a login which uses a username and password

Next ▶

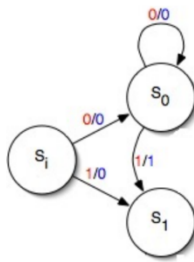
Question 25**1 pts**

A number of modules which are used to start up and test a coffee machine, when it is powered on, are grouped

together. What type of cohesion is this an example of?

- ☐ Coincidental cohesion
- ✓ ☒ Temporal cohesion
- ✓ ☒ Logical cohesion
- ☐ Sequential cohesion
- ☐ Object cohesion

Next ▶



Which of the following is true about the above figure?

(select all correct answers)

- ☐ It represents a Petri net
- ☒ It is called Mealy machine
- ☒ The output is dependent on the current state and the event
- ☐ The output is dependent on the event only
- ☐ It is called a Moore machine

截图(Alt + A)

Next ►

Question 2

1 pts

Which of the following could not be Actors in a use case diagram?

(select all correct answers)

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- ☒ A customer for an e-commerce system
- ☒ An external payment system
- ☒ A login class
- ☒ A doctor for a medical information system
- ☒ A database table

Question 2**1 pts**

Which of the following statements is true, with respect to synchronization bars in a UML activity diagram?

(select all correct answers)

- ☒ It is represented by a thick line
- ☒ It is used to control the start time of a new activity
- ☒ It can be used to start multiple activities
- ☐ It represents a user case
- ☐ It can be used to represent a decision

[Next ►](#)**Question 3****1 pts**

Which of the following are examples of software coupling?

(select all correct answers)

- ☒ Two pieces of software communicating by sharing data
- ☐ Two software methods executing at the same time
- ☒ One class being a superclass of another class
- ☒ One piece of software calling another piece of software

Question 26**1 pts**

Which of the following are verifiable non-functional requirements?

(select all correct answers)

- ☒ The implementation of the code is to be done in Java
- ☐ The system is secure
- ☒ All passwords must be at least 8 characters
- ☐ The system responds quickly
- ☐ The system provides login and forgot password features

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Question 5

1 pts

Which of the following statements comparing black box and white box testing are true?

- ☒ Black box testing can use the specification only to develop the test, white box testing needs the source code as well
- ☐ Black box testing can be used to test all the paths in the code
- ☒ White box testing can be used to test all the paths in the code
- ☐ White box testing is a form of regression testing
- ☐ White box testing can be started earlier in the product lifecycle

源代码

黑盒

regression是debug后进行测试确保没有新的bug

Question 29

1 pts

A variable H has the following equivalence ranges

$0 < H < 100$

$5,000 < H < 6,000$

Which of the following are boundary values for H?

- ☒ 0, 1, 99, 100, 5000, 5001, 5999 and 6000 only
- ☐ 1, 2, 100, 101, 5001, 5002, 6000 and 6001 only
- ☐ 0, 1 and 5999 and 6000 only
- ☐ 0, 100, 5000, 6000 only

Next ▶

Question 14

1 pts

Which of the following could be Actors in a use case diagram?

(select all correct answers)

- ☒ Heat sensors in a fire alarm system
- ☒ An external email system
- ☐ A login class
- ☐ A database table
- ☒ A customer for an e-commerce system

Question 32

1 pts

Which of the following would be tested best using a bottom up approach to testing?

(select all correct answers)

- ☒ Real time systems
- ☒ Systems with strict performance requirements
- ☒ Object-oriented systems
- ☐ Prototype systems (demonstration)

Next ►

Question 23

1 pts

Look at the following program

```
1) read x
2) if (x<0) return(-1)
3) if (x==0) return(1)
4) answer=1
5) count=1
6) while (count<=x+1) {
7)     answer=answer*count
8)     count++
9) }
10) return(answer)
```

What is the minimum number of tests that will be needed to ensure that every piece of the code gets executed at least once?

$3+1=4?$

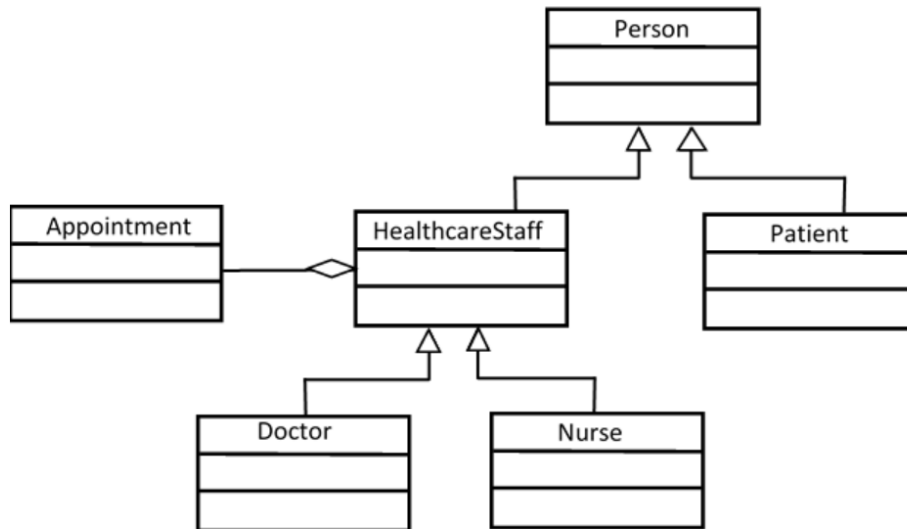
- ☒ 3
- ☐ 1
- ☐ 2
- ☐ 5

Next ►

Question 34

1 pts

Examine the following diagram and answer the question below.



Which sentence below gives all the aggregation "part-of" relations present in the diagram?

- ☐ Appointment is part of Doctor only
- ☐ Healthcare staff is part of Appointment only
- ☒ Appointment is part of HealthcareStaff only
- ☐ There are no part of relationships in the diagram
- ☐ Person is part of Doctor, Nurse and Patient

Question 35

1 pts

Which of the following are depicted in a typical UML class diagram?

(select all correct answers)

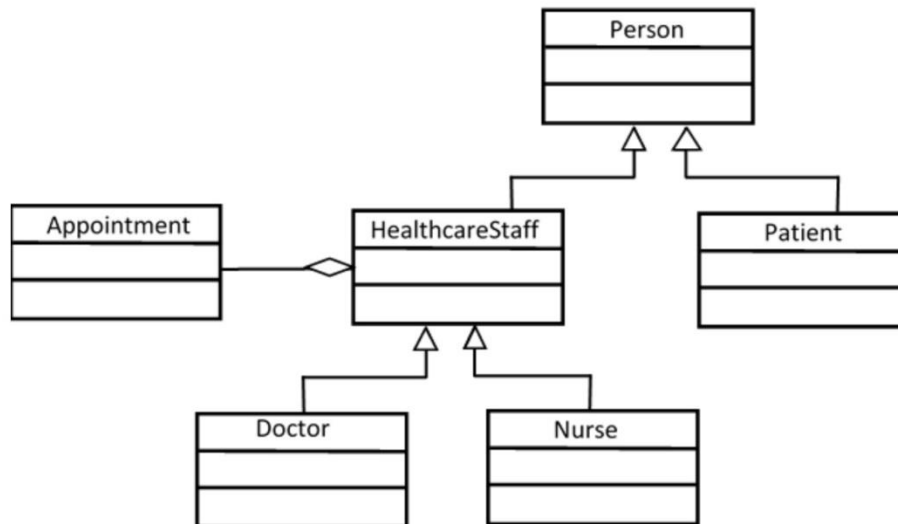
- ☐ Actors
- ☐ State events
- ☐ Processes
- ☒ Attributes
- ☒ Access modifiers

Next ►

Question 36

1 pts

Examine the following diagram and answer the question below.



Which of the sentences below lists all the inheritance (is-a) relations present in the diagram?

- ☒ Doctor is a HealthcareStaff, Nurse is a HealthcareStaff, HealthcareStaff is a Person, Doctor is a Person, Nurse is a Person, Patient is a Person only
- ☐ Doctor is a HealthcareStaff, Nurse is a HealthcareStaff, Patient is a Person only
- ☐ Doctor is a HealthcareStaff, Nurse is a HealthcareStaff, HealthcareStaff is a Person, Patient is a Person only
- ☐ Doctor is a HealthcareStaff, Nurse is a HealthcareStaff, Patient is a Person only
- ☐ Appointment is a HealthcareStaff only

Question 32

1 pts

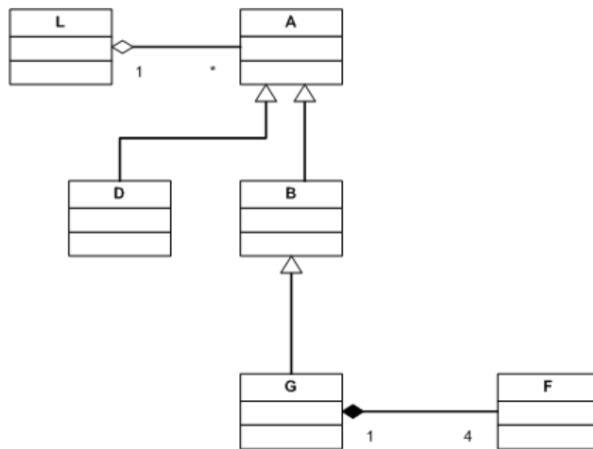
Which of the following can be used to guarantee the code has no bugs?

- ☐ Regression testing
- ☐ Complete path testing
- ☐ Boundary testing
- ☒ Exhaustive testing 理论上
- ☐ Partition testing

Question 36

1 pts

Examine the following diagram and answer the question below.



With respect to the diagram, which of the following statements is true?

- ☒ G inherits methods and attributes from B and A only
- ☐ G inherits methods and attributes from D only
- ☐ F inherits methods from G
- ☐ G inherits methods and attributes from B only
- ☐ Since D and A are siblings they have all the same methods

Next ►

Question 30

1 pts

Which of the following are features of top down testing?

(select all the correct answers)

- ☒ Good for early architectural validation
- ☐ Good for testing real time systems
- ☒ Stubs have to be written
- ☐ Test drivers are needed
- ☐ Best for OO systems

Next ►

Question 38**1 pts**

Even though the software passes all the specifications, the customer is unhappy with the final product.

Which of the following statements is true?

- ☐ This would resolved by more white box testing
- ☐ This is an example of verification failure
- ☐ This would be resolved using regression
- ☐ By using path testing this could be discovered earlier in the life cycle
- ☒ This is an example of validation failure

Question 37**1 pts**

Indicate what information is provided by Non-Functional requirements?

X1: How the system should behave in particular situations.

X2: The constraints on the development process, standards.

X3: How the system should react to particular inputs.

X4: The constraints on the services offered by the system such as timing constraints.

- ☐ X2, X3 and X4 only
- ☐ X1 and X3 only
- ☐ X1, X2 and X4 only
- ☒ X2, and X4 only
- ☐ X3 and X4 only

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Question 13

1 pts

Look at the following code, what is the smallest number of tests required to path test this method?

```
public int factorial(int n) {  
    if (n<0) return(-1); // -1 indicates an error  
    if (n==0) return(1); // factorial of 0 = 1  
    int answer=0;  
    for (int idx=0;idx<n;idx++) {  
        answer=answer*idx;  
    }  
    return(answer);  
}
```

☒ 4

☐ 3

☐ 2

☐ 1

☐ 5

Question 9

1 pts

Which of the following statements comparing black box and white box testing are true?
(select all correct answers)

☐ Black box testing can be used to test all the paths in the code

☒ Black box testing can use the specification only to develop the test, white box testing needs the source code as well

☒ White box testing is a form of regression testing

☒ White box testing can be used to test all the paths in the code

☒ White box testing can be started earlier in the product lifecycle

Next ►

Question 8

1 pts

What is the best description of Algorithmic cost modelling?

- ☒ A formulaic approach based on historical cost information
- ☐ The work expands to fill the time available
- ☐ The project costs whatever the customer has to spend on it
- ☐ The project is compared to previous projects
- ☐ The project is estimated based on market conditions

Next ►

Question 13

1 pts

Which of the following are problems associated with task dependencies when task scheduling?

(select all correct answers)

- ☒ Can increase total schedule time
- ☒ Stops tasks to be being executed concurrently
- ☐ Dependencies will result in code coupling
- ☒ Makes testing more difficult
- ☒ Increases the number of staff required to complete the project

Question 12**1 pts**

Which of the following statements are true about black box testing?

(select all correct answers)

- ☒ Black box testing keeps the **source** code hidden
- ☐ Test cases control the flow round loops
- ☒ The tests are based on the specification
- ☐ Testing uses path testing
- ☒ The tests are written using test data equivalence partitioning

Question 6**1 pts**

Parkinson's law is best described by which of the following statements?

- ☒ The project costs expand to consume whatever resources are available
- ☐ One or more experts in both software development and the application domain use their experience to predict the project costs
- ☐ The project cost is estimated as a mathematical function of product, project and process attributes whose values are estimated by project managers
- ☐ The cost of the project is computed by a computer simulation of the project
- ☐ The project cost is computed by comparing the project to a similar project in the same application domain

Question 11**1 pts**

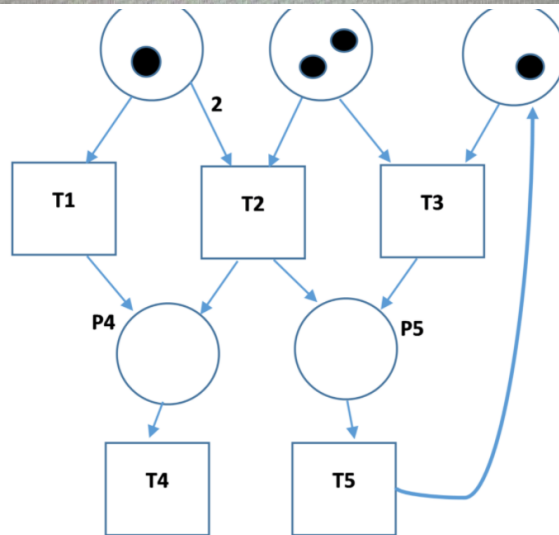
Which of the following are disadvantages of the waterfall method?

(select all correct answers)

- ☐ Systems are sometimes poorly structured
- ☒ Difficult to respond to changing customer requirements
- ☐ Lack of testing phase
- ☐ Lack of process visibility
- ☒ Inflexible partitioning

What is the purpose of extension in a use case diagram?

- ☐ It is used to describe tasks which take a long time
- ☒ It defines the order of events in the use case
- ☒ It describes optional use case behaviour
- ☐ It shows the change of the system internal state after the use case has finished
- ☐ It shows what must be true for a use case to proceed



Consider the Petri Net shown above with places p1, p2, p3, p4 and p5 transitions t1, t2, t3, t4 and t5. For the given initial state of the system shown in figure, which transitions are enabled?

- ☒ t1 and t3 only
- ☐ t1 only
- ☐ t1, t2 and t3 only
- ☐ t1 and t2 only
- ☐ t2 and t3 only

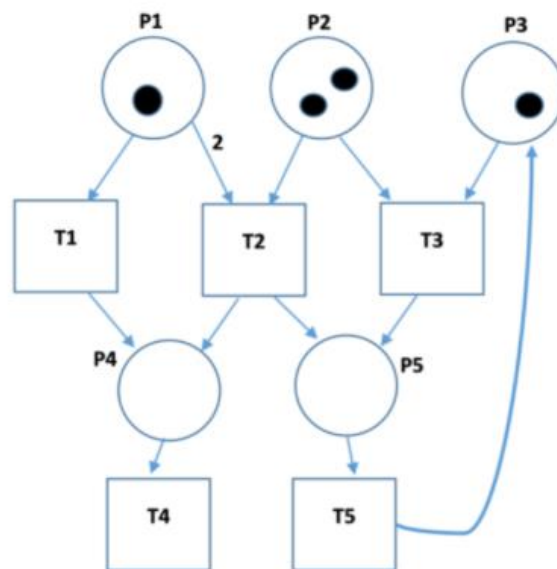
Question 4

1 pts

What will happen to the project schedule if a task on the critical path is delayed?

(select all correct answers)

- ☐ All task in the schedule will be delayed
- ☐ The project will fail to be delivered
- ☒ The projects delivery date will be delayed
- ☒ All subsequent tasks on the critical path will be delay
- ☐ All tasks on the critical path will be delayed



When the Petri Net shown above fires, which transitions will fire, and after firing which transitions will be then be enabled?

- ☒ t1 or t3 will fire we cannot predict which, if t1 fires only t4 will be enabled if t3 fires only t5 will be enabled
- ☐ t1 will fire, only t5 will be enabled
- ☐ t2 will fire, t4 and t5 will be enabled
- ☐ t3 will fire, t5 will be enabled
- ☐ t4 will fire, t1 will be enabled

Question 18**1 pts**

Which of the following statements about petri-nets are false?

- ☐ The weight on an incoming Petri arc to a place defines the number of tokens it produces
- ☒ Petri nets are useful for modelling concurrent systems
- ☒ Petri nets are always finite state machines
- ☐ Transitions fire atomically
- ☐ Petri nets can be non-deterministic

Question 16**1 pts**

Which of the following are processes in the waterfall software lifecycle?

(select all correct answers)

- ☐ Risk Analysis
- ☒ Requirements analysis and definition
- ☒ Integration and system testing
- ☐ SCRUM
- ☒ Operation and maintenance

[Next ►](#)**Question 14****1 pts**

Which of the following is true about Mealy machines?

(select all correct answers)

- ☐ A state has to have a token on the input to be enabled
- ☐ The output is determined by the current state only
- ☒ They can be used to model deterministic systems
- ☒ They are finite state machines
- ☐ The output is determined by the input only

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Question 1

1 pts

Which of the following are non functional requirements?

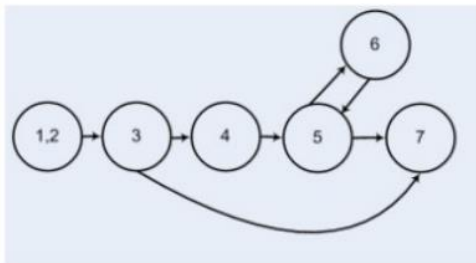
(select all correct answers)

- ☐ The system has a forgot password button which uses email
- ☐ The users will login with a username and a password
- ☒ The system should use OO modelling and UML as part of its design approach
- ☒ The code must be written in Java
- ☒ The username must be at least 10 characters long

Question 17

Look at the following program and its corresponding flow graph.

```
1 read x
2 y=0
3 if (x==0) return(y);
4 y=1
5 while ( abs(y*y - x) > 0.01)
6   y= ( y+(x/y) ) /2;
7 return(y)
```



Given the following test suite

(x = 0)

(x = 1)

Which of the nodes illustrated in Figure 3 is not covered?

☐ 5

☒ 6

☐ 2

☐ 4

☐ 3