Scenario:
Given "that ClassR includes ClassO, ClassX, and ClassA in its hierarchy of supertypes"
And "that in ClassO the inherited attribute attT from its supertypes ClassK and ClassA has an upper bound multiplicity of 1"
When "ClassG has exactly two references to itself"
And "the attribute attY of ClassD is accessible from ClassE via reference refP and reference refR"
Then "the attribute attP of ClassN shall take exactly one of the literals litG, litR, litL"
And "ClassJ shall contain zero or any number of elements of type ClassJ via the reference refH"
Task 1.1

Please have a look at the scenario description and the corresponding model under test in order to answer the following five questions. Questions are independent from each other, please answer each question on its own. If a scenario test fails, please also mention the line number(s)/message number(s) in the scenario description responsible for the failure.

1d) Does the scenario test fail if in ClassA the lower bound of attribute attT is changed to 1?
   Line number(s) / message number(s): ________________

2c) Does the scenario test fail if ClassY together with its references and inheritance relationships is deleted from the model?
   Line number(s) / message number(s): ________________

3b) Does the scenario test fail if in ClassB the navigability of reference refR is inverted?
   Line number(s) / message number(s): ________________

4e) Does the scenario test fail if both attributes of ClassN are of type EInt?
   Line number(s) / message number(s): ________________

5a) Does the scenario test fail if the containment reference refH of ClassJ has a multiplicity of 1..*?
   Line number(s) / message number(s): ________________

Comments:

Start time:

End time:
Task 1.2

1  Scenario:
2    Given "that it is possible to navigate from ClassC to ClassJ via references refH, refL, and refW"
3    And "both references refO and refI from ClassJ to ClassS have the same lower bound multiplicity"
4    When "all supertype classes of ClassM are abstract"
5    And "the attribute attB from ClassG is of type EString and has a multiplicity of 1..1"
6    Then "ClassO shall own exactly eight structural features"
7    And "ClassN shall inherit exactly four attributes from all of its supertype classes"
Task 1.2

The scenario test fails. Please have a look at the scenario description and the corresponding model under test and mention the line number(s)/message numbers(s) which are responsible for the failure: 

The model under test has to be adapted in order for the scenario test to pass. Please answer the following five questions whether changes in the model make the scenario test pass. Questions are independent from each other, please answer each question on its own. If a scenario test fails, please also mention the line number(s)/message number(s) in the scenario description responsible for the failure.

1e) Does the scenario test pass if the attribute attB of ClassG is of type EInt with multiplicity 1..1? 
   Yes / No / Don't know  
   Line number(s) / message number(s): 

2c) Does the scenario test pass if ClassR has ClassF as its supertype class?  
   Yes / No / Don't know  
   Line number(s) / message number(s): 

3a) Does the scenario test pass if reference refZ and attribute attK are deleted from ClassO?  
   Yes / No / Don't know  
   Line number(s) / message number(s): 

4b) Does the scenario test pass if two references named refX and refY point from ClassP to ClassO?  
   Yes / No / Don't know  
   Line number(s) / message number(s): 

5d) Does the scenario test pass if the navigability of both references from ClassH to ClassO is inverted?  
   Yes / No / Don't know  
   Line number(s) / message number(s): 

Comments: 

Start time:  
End time:
Task 2.1

Please have a look at the scenario description and the corresponding model under test in order to answer the following five questions. Questions are independent from each other, please answer each question on its own. If a scenario test fails, please also mention the line number(s)/message number(s) in the scenario description responsible for the failure.

1a) Does the scenario test fail if ClassF, ClassT, and ClassD are declared abstract?  
   Yes / No / Don’t know
   Line number(s) / message number(s): _______________________

2c) Does the scenario test fail if the reference refG of ClassG is not a containment reference and has a multiplicity of 1..1?  
   Yes / No / Don’t know
   Line number(s) / message number(s): _______________________

3b) Does the scenario test fail if in ClassI the navigability of reference refJ is inverted?  
   Yes / No / Don’t know
   Line number(s) / message number(s): _______________________

4d) Does the scenario test fail if in ClassA the lower bound of attribute attR is changed to 1?  
   Yes / No / Don’t know
   Line number(s) / message number(s): _______________________ 

5e) Does the scenario test fail if the reference refB of ClassY is inverted?  
   Yes / No / Don’t know
   Line number(s) / message number(s): _______________________

Comments:

Start time: _______________________

End time: _______________________

______________________________
Task 2.2

The scenario test fails. Please have a look at the scenario description and the corresponding model under test and mention the line number(s)/message numbers(s) which are responsible for the failure:

The model under test has to be adapted in order for the scenario test to pass. Please answer the following five questions whether changes in the model make the scenario test pass. Questions are independent from each other, please answer each question on its own. If a scenario test fails, please also mention the line number(s)/message number(s) in the scenario description responsible for the failure.

1c) Does the scenario test pass if attributes attC and attJ of ClassR are of type EInt? Yes / No / Don't know
   Line number(s) / message number(s): __________________________

2e) Does the scenario test pass if the reference refK of ClassB points to ClassC instead of ClassK? Yes / No / Don't know
   Line number(s) / message number(s): __________________________

3a) Does the scenario test pass if the inheritance relationship between ClassB and ClassT is deleted? Yes / No / Don't know
   Line number(s) / message number(s): __________________________

4b) Does the scenario test pass if the inheritance relationship between ClassN and ClassB is deleted? Yes / No / Don't know
   Line number(s) / message number(s): __________________________

5d) Does the scenario test pass if in ClassR the attributes attD and attJ have an upper bound multiplicity of 1? Yes / No / Don't know
   Line number(s) / message number(s): __________________________

End time:

Comments:
Task 3.1
Task 3.1

```java
@TestSuite
operation testSuite() {
    @TestCase
    operation testCase() {
        @TestScenario
        operation testScenario() {
            $pre Model!EClass.all().selectOne(x|x.name="ClassI").eSuperTypes.selectOne(x|x.name="ClassE").eStructuralFeatures.selectOne(x|x.name="attH").upperBound = -1
            $pre Model!
            EClass.all().selectOne(x|x.name="ClassM").eStructuralFeatures.select(x|x.isTypeOf(EAttribute)).collect(x|x.eType.name).includesAll(Set{"EString","EInt","EBoolean"})
            operation testScenario() {
                if (Model!EClass.all().selectOne(x|x.name="ClassV").closure(x|x.eSuperTypes).size() = 5
                    and
                    Model!EClass.all().selectOne(x|x.name="ClassP").eStructuralFeatures.select(x|x.isTypeOf(EReference)).size() = 5
                ) {
                    assertTrue(Model!EClass.all().selectOne(x|x.name="ClassG").eStructuralFeatures.selectOne(x|x.name="refW").eType.eStructuralFeatures.selectOne(x|x.name="refP").eType.eStructuralFeatures.selectOne(x|x.name="refE").eType.name = "ClassP");
                    assertTrue(Model!EClass.all().selectOne(x|x.name="Class3").closure(x|x.eSuperTypes).collect(x|x.eStructuralFeatures.select(x|x.isTypeOf(EAttribute))).size().sum() = Model!EClass.all().selectOne(x|x.name="ClassW").closure(x|x.eSuperTypes).collect(x|x.eStructuralFeatures.select(x|x.isTypeOf(EAttribute))).size().sum);
                } else {
                    assertTrue(false);
                }
            }
        }
    }
}
```
Task 3.1

Please have a look at the scenario description and the corresponding model under test in order to answer the following five questions. Questions are independent from each other, please answer each question on its own. If a scenario test fails, please also mention the line number(s)/message number(s) in the scenario description responsible for the failure.

1b) Does the scenario test fail if in ClassM the navigability of reference refE is inverted?  
   Yes / No / Don't know  
   Line number(s) / message number(s): ________________

2e) Does the scenario test fail if in ClassM the attribute attK is of type EBoolean and has a multiplicity of 0..1?  
   Yes / No / Don't know  
   Line number(s) / message number(s): ________________

3c) Does the scenario test fail if ClassP has ClassQ as its supertype class?  
   Yes / No / Don't know  
   Line number(s) / message number(s): ________________

4a) Does the scenario test fail if in ClassP the navigability of reference refJ is inverted?  
   Yes / No / Don't know  
   Line number(s) / message number(s): ________________

5d) Does the scenario test fail if in ClassM the attribute attG is deleted and the attribute attO is of type EBoolean?  
   Yes / No / Don't know  
   Line number(s) / message number(s): ________________

Comments:

Start time:

End time:
Task 3.2

```java
@TestSuite
operation testSuite() {
    @TestCase
    operation testCase() {
        @TestScenario
        $pre Model!EClass.all().selectOne(x|x.name="ClassJ").eStructuralFeatures.select(x|x.isTypeOf(EReference) and x.containment=true and x.eType.name="ClassF").size() = 2
        $pre Model!EClass.all().selectOne(x|x.name="ClassI").eStructuralFeatures.size() = 6
        operation testScenario() {
            if (Model!EClass.all().selectOne(x|x.name="ClassC").eStructuralFeatures.selectOne(x|x.name="refC").eType.eStructuralFeatures.selectOne(x|x.name="refB").eType.eStructuralFeatures.exists(x|x.name="attN")
                and Model!EClass.all().selectOne(x|x.name="ClassE").eStructuralFeatures.selectOne(x|x.name="refF").eType.eStructuralFeatures.selectOne(x|x.name="refM").eType.eStructuralFeatures.exists(x|x.name="attN")
                and Model!EClass.all().selectOne(x|x.name="ClassC").eStructuralFeatures.selectOne(x|x.name="refC").eType.eStructuralFeatures.selectOne(x|x.name="refB").eType.eStructuralFeatures.exists(x|x.name="attN")
                and Model!EClass.all().selectOne(x|x.name="ClassE").eStructuralFeatures.selectOne(x|x.name="refF").eType.eStructuralFeatures.selectOne(x|x.name="refM").eType.eStructuralFeatures.exists(x|x.name="attN")
            ) {
                assertTrue(Model!EClass.all().selectOne(x|x.name="ClassC").closure(x|x.eSuperTypes).collect(x|x.eStructuralFeatures.select(x|x.isTypeOf(EAttribute)).size()).sum() = 5);
                assertTrue(Model!EClass.all().selectOne(x|x.name="ClassG").closure(x|x.eSuperTypes).forAll(x|x.abstract=true));
            }
            else {
                assertTrue(false);
            }
        }
    }
}
```
Task 3.2

The scenario test fails. Please have a look at the scenario description and the corresponding model under test and mention the line number(s)/message numbers(s) which are responsible for the failure:

The model under test has to be adapted in order for the scenario test to pass. Please answer the following five questions whether changes in the model make the scenario test pass. Questions are independent from each other, please answer each question on its own. If a scenario test fails, please also mention the line number(s)/message number(s) in the scenario description responsible for the failure.

1e) Does the scenario test pass if ClassR has ClassN as its supertype class instead of ClassT?  
   Yes / No / Don't know
   Line number(s) / message number(s): ________________

2b) Does the scenario test pass if in ClassJ the containment reference refT points to ClassZ instead of ClassF?  
   Yes / No / Don't know
   Line number(s) / message number(s): ________________

3d) Does the scenario test pass if in ClassC the navigability of reference refM is inverted?  
   Yes / No / Don't know
   Line number(s) / message number(s): ________________

4a) Does the scenario test pass if ClassA, ClassT, and ClassL are declared abstract?  
   Yes / No / Don't know
   Line number(s) / message number(s): ________________

5c) Does the scenario test pass if ClassT together with its connecting references and inheritance relationships is deleted from the model?  
   Yes / No / Don't know
   Line number(s) / message number(s): ________________

Comments:

Start time:  
End time: