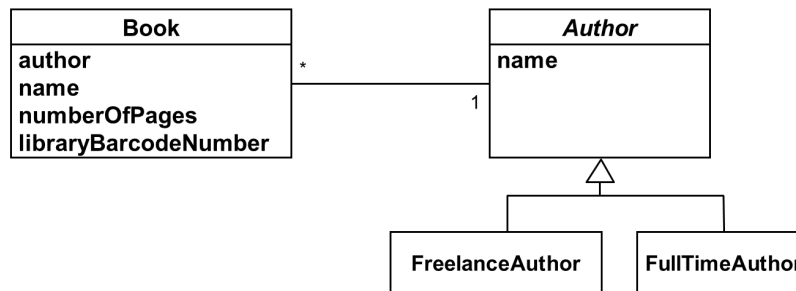# **Multiple Choice Questions**

1) *(8 marks)* **How many** problems need to be corrected in the following class diagram? Assume that a Book is always written by one Author.

Book
author
name
numberOfPages
libraryBarcodeNumber

Author
name

* ─── 1

| **FreelanceAuthor** | | **FullTimeAuthor** |

a) One
b) Two
c) Three
d) Four

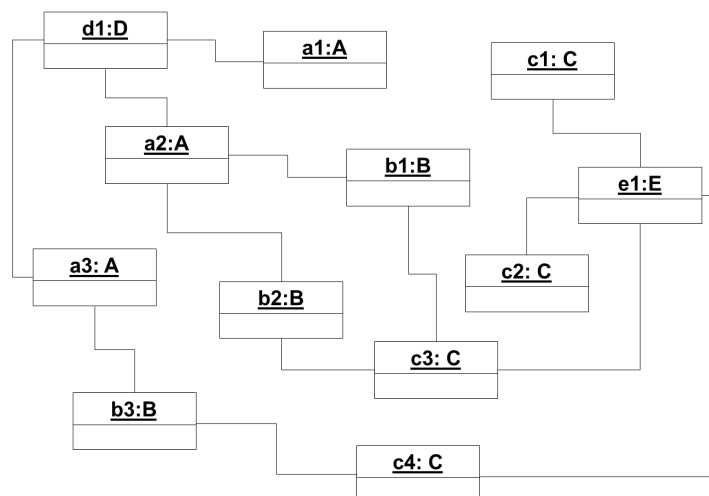2) *(6 marks)* Which **one** of the following statements is correct?
a) An association abstracts from one or two instance variables.
b) An association abstracts from one or two class variables.
c) An attribute abstracts from two instance variables.
d) An attribute abstracts from two class variables.

3) *(6 marks)* **Which** of the following three statements are false?
3.1) Composition and aggregation are transitive and cyclic.
3.2) A composition relationship between a container and its parts means that the parts are destroyed when the container is destroyed.
3.3) An aggregation relationship allows a part to be moved from one container to another, while a composition relationship does not allow a part to be moved from one container to another.

a) only 3.1 is false   b) only 3.3 is false   c) only 3.1 and 3.2 are false   d) only 3.1 and 3.3 are false

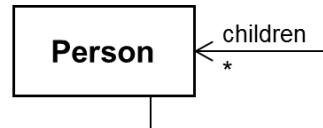4) *(8 marks)* Which **one** of the following statements is correct?

d1:D	a1:A	c1: C

| a2:A | b1:B | e1:E |

| a3: A | b2:B | c2: C |

| c3: C |

| b3:B | c4: C |

a) A is an association class and B is an association class.
b) A is an association class and B is not an association class.
c) A is not an association class and B is an association class.
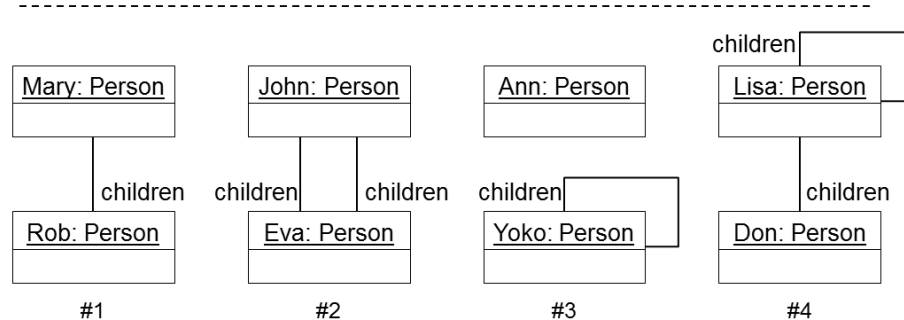d) A is not an association class and B is not an association class.

5) *(6 marks)* Identify **all** of the following statements that are correct.
a) An operation may be an initializer.
b) An operation may be an observer.
c) An operation may be a listener.
d) An operation may be an iterator.

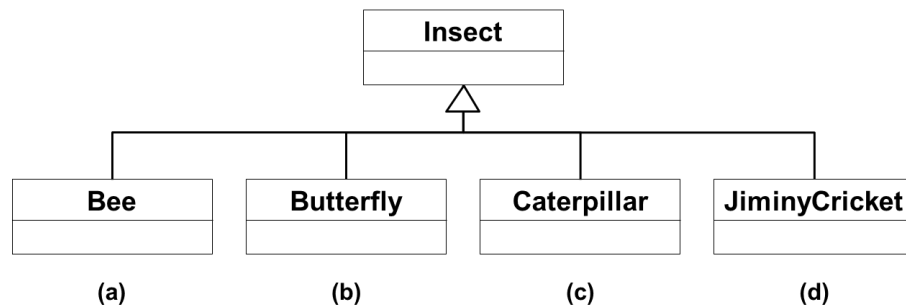6) *(8 marks)* **How many** of the following four object diagrams conform to the given class diagram?
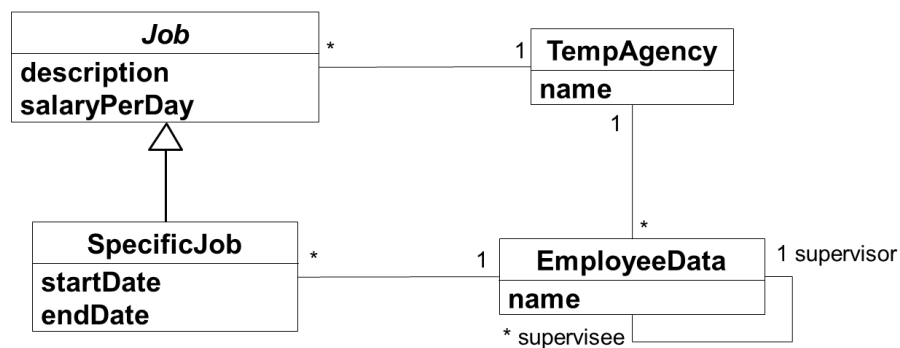

a) One
b) Two
c) Three
d) Four

7) *(8 marks)* Identify **all** of the following subclasses that do not fail a check for proper generalization.

8) *(8 marks)* **How many** problems need to be corrected in the following class diagram? Assume that the TempAgency is a singleton and that containment is correct.
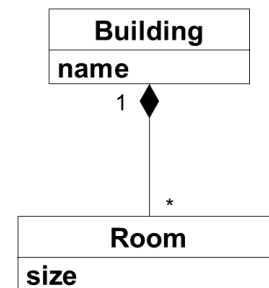
a) One
b) Two
c) Three
d) Four

9) *(6 marks)* Identify **all** of the following statements that are incorrect.
a) A method is the same as an operation.
b) A method may be static.
c) A method that is not abstract may not be overridden.
d) A method that is abstract cannot be inherited.

10) *(8 marks)* Identify **all** of the following code excerpts that do not contain redundant method calls based on the code generated by Umple from the given class diagram.
a) Building b = new Building("Redpath");
   Room room = b.addRoom(12);
   room.setSize(45);
b) Building b = new Building("Redpath");
   Room room = b.addRoom(12);
   room.setBuilding(b);
c) Building b = new Building("Redpath");
   Room room = new Room(12, b);
   b.addRoom(room);
d) Building b = new Building("Redpath");
   Room room = new Room(12, b);
   room = b.addRoom(45);

Building
name

1 ◆

*

Room
size

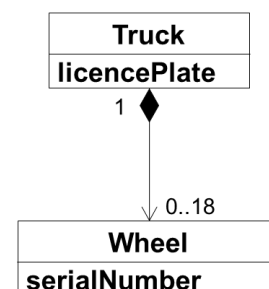11) *(6 marks)* Identify **all** of the following statements that are correct.
a) In Umple, a lazy attribute can only be set once.
b) In Umple, a defaulted attribute can be set and reset.
c) In Umple, a unique attribute can be set.
d) In Umple, an autounique attribute can be set.

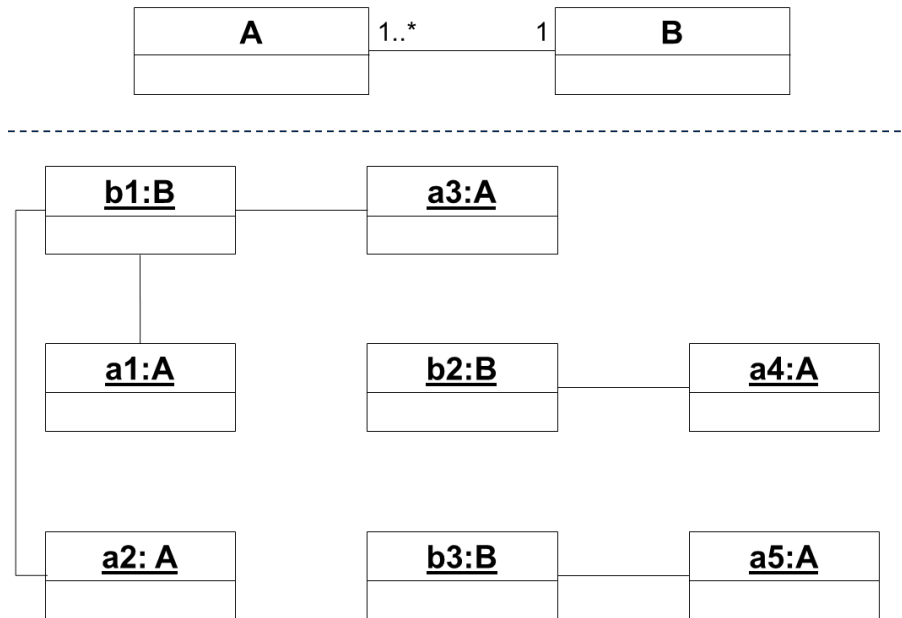12) *(6 marks)* Identify **all** of the following statements that are incorrect.
a) Descriptive models may be used to predict interesting characteristics of systems.
b) Programming languages are the ultimate form of prescription.
c) A model thoroughly describes all properties of a system.
d) The Unified Modeling Language contains structural, behavioral, and intentional models.

13) *(8 marks)* Which **one** of the following lists of methods contains only methods generated by Umple from the given class diagram?
a) Truck.addWheel(int aSerialNumber);
   Truck.addWheel(Wheel aWheel);
   Wheel.setTruck(Truck aTruck);
b) Truck.addWheel(int aSerialNumber);
   Truck.removeWheel(Wheel aWheel);
   Wheel.setSerialNumber(int aSerialNumber);
c) Truck.setWheel(Wheel aWheel);
   Truck.setLicencePlate(String aLicencePlate);
   Wheel.setSerialNumber(int aSerialNumber);
d) Truck.addWheel(int aSerialNumber);
   Truck.addWheel(Wheel aWheel);
   Wheel.removeTruck(Truck aTruck);

Truck
licencePlate

1 ◆

0..18

Wheel
serialNumber

14) *(8 marks)* Identify **all** of the following method calls that execute correctly on the set of instances shown in the object diagram based on the code generated by Umple from the given class diagram and Umple's rules for referential integrity.

A		1..* 1	B	

a) a1.setB(b3)
b) a5.setB(b2)
c) b1.addA(a4)
d) b2.addA(a3)