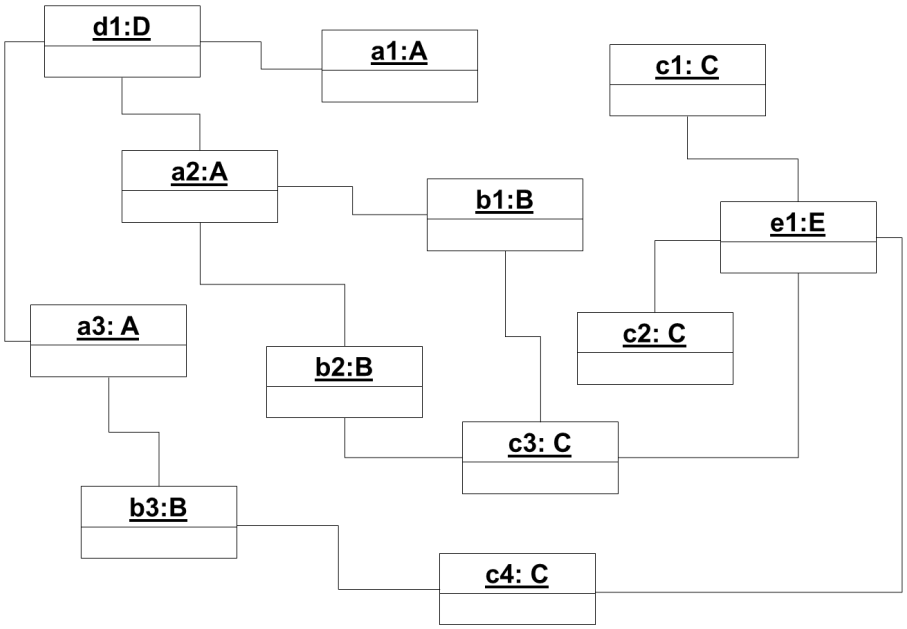
Question 1 (10 marks)

Given the following object diagram, is it possible for class B to be an ***association class***? State your reason for why class B is or is not an association class.



Question 2 (10 marks)

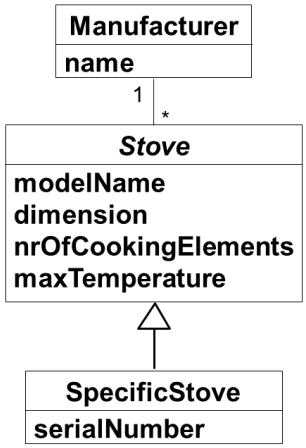
Describe each of the ***three checks for proper generalization*** in one sentence. In addition, give two examples for each check: one that passes the check and one that fails the check.

Question 3 (10 marks)

Abstractions help software engineers deal with complexity because one can reason about a simplified representation instead of the full details. Explain three examples of ***abstractions*** in object-oriented systems in one sentence each.

Question 4 (10 marks)

Why is the following solution inappropriate? State the correct solution for this problem.



Question 5 (10 marks)

Explain the differences and similarities of an ***association***, an ***aggregation***, and a ***composition*** in a few sentences.

Question 6 (10 marks)

In one or two sentences, explain the basic principle Umple is using to ensure ***referential integrity*** when generating Java code. In addition, illustrate this basic principle with an example. (note: you do not have to draw a sequence diagram for the example – explain the example in words)

Question 7 (10 marks)

Explain ***two additional properties*** that can be specified for ***attributes*** in Umple in one or two sentences each.

Question 8 (10 marks)

Explain the differences and similarities of an ***attribute***, an ***association***, an ***instance variable***, a ***class variable***, and a ***field*** in a few sentences.

Question 9 (10 marks)

Describe each of the following two key concepts of object orientation with one or two sentences: ***identity*** and ***polymorphism***.

Question 10 (10 marks)

Describe in one sentence what the ***intension*** of a concept is. Describe in one sentence what the ***extension*** of a concept is. In addition, give an example to explain intension and extension.