

UML Quiz Explanations

[These are explanations to each right of the right answers to the quiz questions before this]

1. Ship is a subclass of vehicle. We can say “A ship IS-A vehicle.”
2. A title is an attribute (aka instance variable) of the class book.
3. This is a typical case where “Albert Einstein” is an object (aka instance) of the type “Person”. One way to convince ourselves that this is not a case for inheritance is that saying “An Albert Einstein IS-A person” – as in “*Every* Albert Einstein IS-A person” doesn’t make sense.
4. The classes “Answer” and “Question” are associated. We can easily imagine that a question class contains an array of answers. While it is not completely wrong to say that answer is an attribute of question, we probably want answer to have some attributes of itself (answer title, answer text, ...) and thus make it its own class.
5. It is correct to say “A room IS-PART-OF-A building.” Also, when the building gets destroyed the room gets destroyed with it, so this is a case of composition. Since composition is a special case of association, answer 1 is also correct.
6. It is correct to draw UML diagrams to the level of detail that communicates the intent. Leaving out a class for tree or an attribute for value does not mean that they don’t exist.
 - Answer 1 is wrong because left and right are not classes, but attributes (and objects at run-time).
 - Answer 2 is the simplest and most straight forward answer.

- Answer 3 is using the composite pattern. This is how a binary tree would be modelled in many functional languages (e.g. Scala).
- Answer 4 is similar to the correct answer 2 but gives more detail – it let's us know that one child node association is called "Left" and the other one "Right".
- Answer 5 is wrong because it allows more than two child nodes and does thus not model a binary tree.