Design and Analysis of Information Systems (MAS)

The Final Exam

First Name	Last Name	No	Group

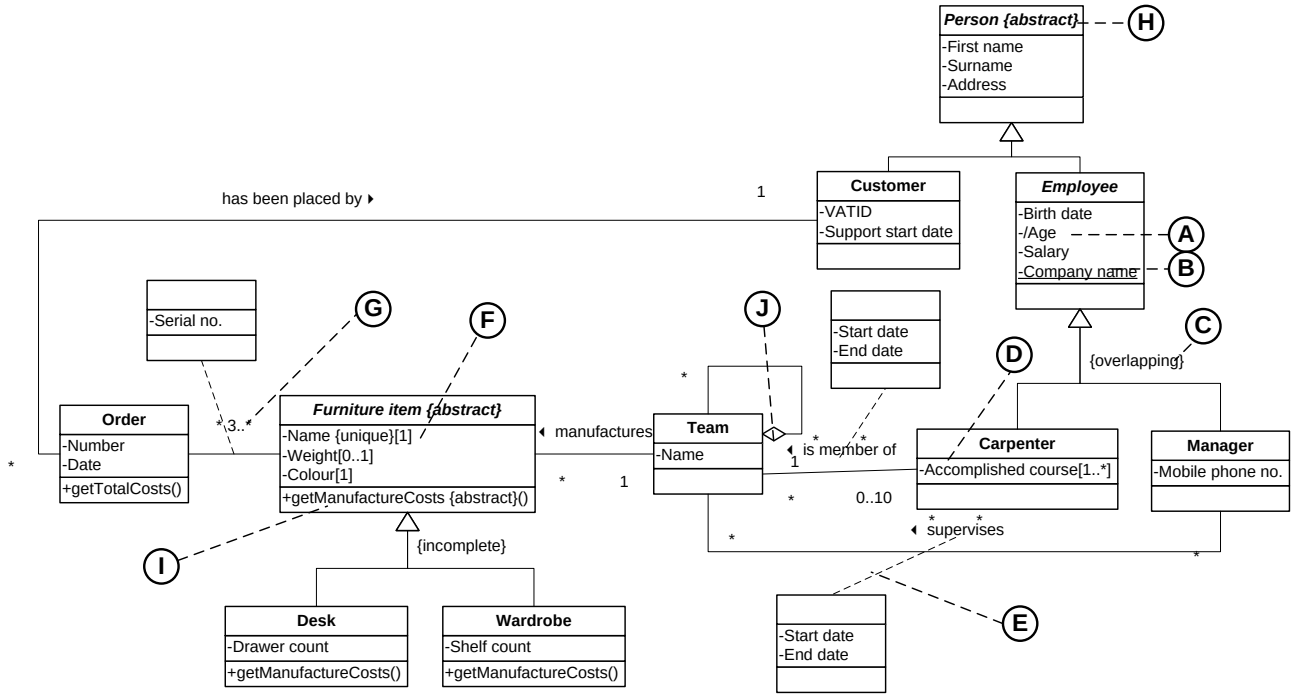
Zestaw B

1. Test questions. Please mark true statements (T) and false ones (F). The correct answer will give +2, a wrong one -2, no answer is 0 points. (total: 0 – 40 points).

- ☐ In the relational model, in case of a column of type *INT*, the *NULL* value means *0*.
- ☐ In the *ObjectPlus* class, a container storing all extents, could be easily implemented using the *ArrayList* class.
- ☐ The reflection technology could be used to read information about a class.
- ☐ In case of the *{XOR}* implementation, it is worth using one of the *contains(…)* method existing in a container class.
- ☐ A method implementing the *{subset}* constraint should take into account a name of the association.
- ☐ Using the declarative approach for GUI creation requires a major effort from the programmer.
- ☐ In popular programming languages (e.g. Java) UML constraints do not exist directly.
- ☐ The *{bag}* constraint for an association means, that links among the same objects are ordered.
- ☐ An implementation of a complex attribute could be based on defining a new type.
- ☐ The impedance mismatch phenomena is related to the poor performance of relational databases.
- ☐ Annotations utilized by the Hibernate could be related to associations.
- ☐ An association attribute is implemented using a dedicated (middle) class.
- ☐ In the relational model, an implementation of aggregation follows the same principles as in the object-oriented one.
- ☐ One of the ways of shaping high usability is the observation how users work.
- ☐ In the relational model, an aggregation is implemented as two middle tables and four foreign keys.
- ☐ The Java serialization technology helps in implementation of extents' persistency.
- ☐ One of the main reason of using identifiers to implement associations is making objects independent from each other.
- ☐ In case of implementing a class extent using another class (e.g. *PersonExtent*), the dedicated collection has to be *static*.
- ☐ A properly designed GUI, should use *radio buttons* to present mutual options.
- ☐ Some of new applications do not focus on adding new functionalities, but on improving GUI.

Source: http://www.mtrzaska.com/mas-exam

2. For the analytical **diagram below**, please name the elements marked with letters from A to J and briefly describe the selected (one) implementation method in Java (max. 10 x 6 points). General definitions, examples, etc. **should not be provided**. In the descriptions, **reference should be made** to the elements in the diagram.



A	.....	**F**	.....
B	.....	**G**	
C	.....		
D	.....		
E	.....	**J**	.....

According to the above requirement, in the answer that describes the **implementation** (and not, for example, a definition), you **must** refer to the marked diagram element. So it is **not enough** to write, for example, that we implement the multi-value attribute using *ArrayList*. It is **mandatory** to write e.g. a piece of code with an attribute name referring to that in the diagram, and/or that we are using an array of size e.g. 3 (if such cardinality is shown in the diagram), etc. There **must be** some reference to the element in the diagram.
The description of the implementation may consist of a piece of source code and/or a text description and/or a fragment of a diagram.