**Chapter 5: System modeling**

**Your name:**

Answer all questions. 1 mark per question

1. What perspectives may be used for system modelling?

   *An external perspective*

   *An interaction perspective*

   *A behavioural perspective*

   *A structural perspective.*

2. What UML diagram types may be used to represent the essential features of a system?

   *Activity diagrams*

   *Use case diagrams*

   *Sequence diagrams*

   *Class diagrams*

   *State diagrams*

3. What is described in a context model?

   *The immediate external environment of the system defining the system's context and the dependencies that a system has on its environment. The context model shows what is outside of the system boundary.*

4. How are activity diagrams used in describing the context of use of a system?

*Activity diagrams may be used to describe the business processes in which the system is used and the other systems which are also used in these processes.*

5. What are the principal components of a textual use-case description?

*The actors involved*

*A description of the interactions*

*The data that is exchanged*

*The stimulus that triggers the use case*

*The response of the system*

*Comments and other information*

6. What is illustrated in a UML sequence diagram?

*A sequence of interactions between the actors in a system's environment and the objects in the system itself. The sequence of interactions describes the implementation of a system feature or function.*

7. How is generalization used to simplify the models of a system with many similar objects?

*Assuming that the similar objects have attributes and methods in common, these common attributes and methods are associated with a 'super-class' which generalizes all of the objects sharing these attributes/methods. The specific object classes only declare the attributes/methods specific to that class and they inherit the general attributes/methods from the super-class.*

8.    What is the basic assumption that underlies event-driven modelling?

*That the system can be represented as a model with a finite number of discrete states and external and internal events trigger a transition from one state to another.*

9.    What are the claimed benefits of model-driven engineering?

*Engineers can work at a high level of abstraction without concern for implementation details.*

*Errors are reduced and the design and implementation process is speeded up.*

*By using powerful generation tools, implementations of the same system can be automatically generated for different platforms.*

10.   What are the three types of abstract system model that are recommended  by the MDA method?

*A computation-independent model (CIM)*

*A platform-independent model (PIM)*

*One or more platform-specific models (PSMs)*