



Student Name:Solution..... ID: Grade:

1. [4 Points] Describe the perspectives that may be used for system modelling.

Soln:

Possibilities include:

- *External– model the context or environment of the system*
- *Interaction– model the interactions between a system and its environment or between the components of a system*
- *Behavioral – model the dynamic behavior of the system and how it responds to events*
- *A structural – model the organization of a system of structure of the data that is processed by the system*

2. [2 Points] Name four UML diagram types that may be used to represent the essential features of a system.

Soln:

Types of UML diagram:

- Activity diagrams
- Class diagrams
- Use Case diagrams
- Sequence diagrams
- State diagrams

3. [3 Points] What are the three types of abstract system model that are recommended by the MDA method?

Soln:

The three types are:

- *Computation-independent model (CIM)*
- *Platform-independent model (PIM)*
- *One or more platform-specific models (PSMs)*

4. [2 Points] List 4 fundamental questions that should be addressed in architectural design?

Soln:

- *Is there a generic application architecture that can be used?*
- *How will the system be distributed?*
- *What architectural style or styles are appropriate?*
- *How should the system be structured?*
- *What control strategy should be used?*

5. [2 Points] What are the principal functions of the 4 layers in a generic information system architecture?

Soln:

- *User interface*
- *User communications, authentication and authorization*
- *Application functionality - Information retrieval and modification*
- *System support software - Database and transaction management*

6. [2 Points] What is an architectural pattern?

Soln:

It is a stylized abstract description of good practice in architectural design that has been tried and tested in different systems and environments. The pattern should include information on when it is and is not appropriate to use that architectural design.

7. [4 Points] Describe the 4 levels at which software reuse is possible.

Soln:

- ***The abstraction level:*** *At this level, you don't reuse software directly but rather use knowledge of successful abstractions in the design of your software.*
- ***The object level:*** *At this level, you directly reuse objects from a library rather than writing the code yourself.*
- ***The component level:*** *Components are collections of objects and object classes that operate together to provide related functions and services.*
- ***The system level:*** *At this level, you reuse entire application systems. This usually involves some kind of configuration of these systems.*

8. [1 Point] Briefly describe the idea of open-source development.

Soln:

Open source development is an approach to software development in which the source code of a software system is published and volunteers are invited to participate in the development process