

Internal Test - Object-oriented Methods with UML

Maximum Duration: 100 minutes

Maximum Marks: 50

(20-May-2016, Friday. School of Information Sciences. Manipal)

(1) [15 marks]

Refer to the Java code used in lecture fourteen. This shows the instantiation of Observer design pattern in a specific context. With respect to this sample code, answer the following:

- (A) Obtain the complete UML class diagram showing the relationships between all the interfaces and classes used in the example.
- (B) Draw an UML sequence diagram representing the behavior of the method named 'testOneAddRenameRemove' (lines 2-13) in the Client class.

(2) [15 marks]

Show UML state machine diagrams for the following two requirements:

- (A) Device Lock and Unlock.
The device locks for 5 minutes if three successive attempts to unlock the screen fail.
- (B) History States.
If the power supply stops when the washing machine is running, it remembers the state. When the power is supplied again, it starts from the same state where it had left.

(3) [15 marks]

With respect to the Adapter design pattern

- (A) State the intent
- (B) State the applicability
- (C) Draw the general structure using UML notation
- (D) State the names of the participants and their roles.

(4) [5 marks]

Refer to the diagram sync-messages.jpg in the directory 'lectures/fifth'.

- (A) Which are the active objects in this interaction?
- (B) Which are the synchronous calls in the diagram?
- (C) Which are the asynchronous messages here?
- (D) What operations are performed in the loop?