Object Oriented Analysis and Design: Assignment Week 3

Total Marks : 20

September 20, 2017

Question 1

An employee object contains the following properties – *Employee_id, Employee_Name, Employee_Salary*. Identify which of the following common operations of an object will be used to *Set_id, Set_name*, and accesses the state of an object to get_name and get_id. *Marks 2*

a) Modifier

b) Selector

c) Iterator

d) Constructor

Answer: a), b)
Explanation: As per slides. Modifier helps to alter the state of the object whereas Selector access the state of an object without altering it.

Question 2

A Car object has following properties – *Manufacturer_name, Model, Drive_it, Lock_it*. Identify which among the above properties represent behaviour of the object. *Marks 2*

a) Drive_it, Model

b) Model, Manufacturer_name

c) Manufacturer_name, Lock_it

d) Lock_it, Drive_it

Answer: d)
Explanation: Manufacturer_name and Model are the state of the object Car as they are the attributes of the Object. Drive_it, Lock_it describes the behaviour of the object Car. Behaviour is the set of things that an object can do on its own or are acted on.

Question 3

What does the image shown below depicts? *Marks 2*

a) Object A invokes the services of Object B.

b) The direction of the line is unidirectional.

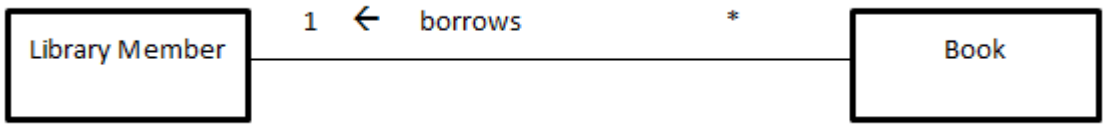
c) Object B invokes the services of Object A.

d) None of the above

Answer: a), b)
Explanation: As per slides.

Question 4

Identify the correct statements for the given image? *Marks 2*



a) The relation is association

b) It is one-to-one relationship

c) Many books may be borrowed by a Library Member

d) None of the above.

Answer: a), c)
Explanation: Here, " borrows " is the association between the class LibraryMember and the class Book and indicates one-to-many relation.

Question 5

Which of the following are weak and strong aggregation relationship? *Marks 2*

a) Department, Teachers

b) Tree, Bamboo

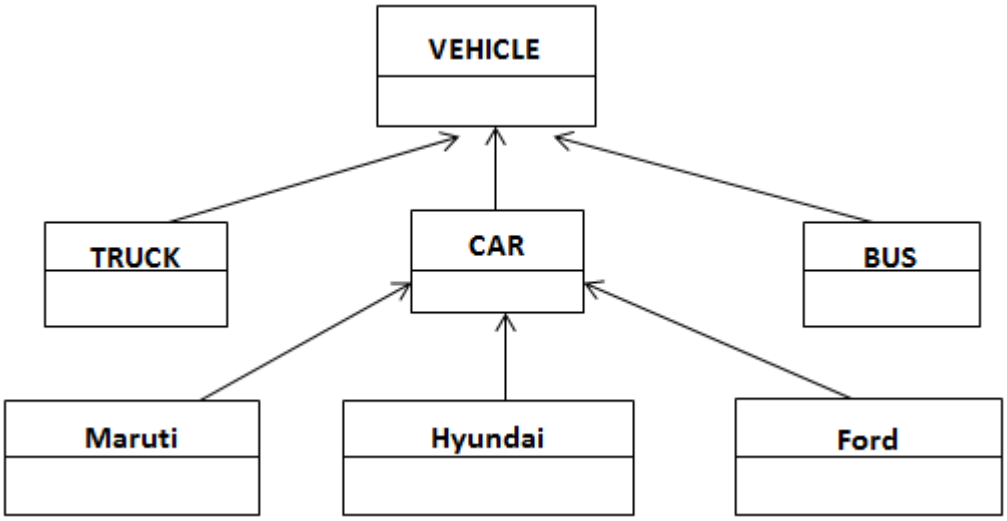
c) Flower, Petal

d) Pen, Pencil

Answer: a), c)
Explanation: a) Weak Aggregation - Teachers are not physically contained in a Department but a member of the department.
c) Strong Aggregation - Petals are physically contained in Flower.

Question 6

Identify the correct statements for the given image. *Marks 2*



a) Maruti is the superclass of vehicle

b) It is an example of Hybrid inheritance

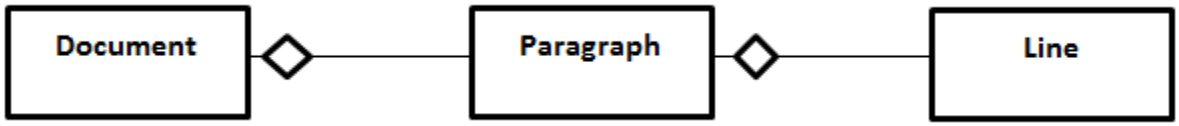
c) Car is subclass of Vehicle and superclass of Maruti.

d) It is an example of Hierarchical Inheritance

Answer: c), d)
Explanation: Multiple derived classes (Truck, Car, Bus) inherit from the same class Vehicle. Similarly multiple derived classes then in turn inherit from Car.

Question 7

Identify the correct statements for the given figure. *Marks 2*



a) Representation of Association

b) Representation of Aggregation

c) Whole / Part Relationship

d) None of the above

Answer: b), c)
Explanation: A document may consist of several paragraphs and each paragraph consists of many lines.

Question 8

Identify the correct statements regarding Coupling and Cohesion. *Marks 2*

a) measure of the degree of interdependence between the two modules.

b) measure of functional strength of modules.

c) Strongly coupled classes produce better design.

d) None of the above.

Answer: a), b)
Explanation: As per slides.

Question

The next set of questions are based on the Assignment Management System (AMS). The brief overview of AMS is

"*A course on Software Construction in IIT wants to manage the assignments to Students, the submissions of assignments by Students, and the evaluations of the submissions through an Assignment Management System (AMS).*"

(Please study the detailed specification of the AMS which has been provided to answer the following questions.)

- Q 9 : Identify the classes of the AMS: *Marks 2*

  a) Student

  b) Instructor

  c) Assignment

  d) None of the above.

  Answer: a), b), c)
  Explanation: Instructor, Student, Assignment are major abstractions of LMS.

- Q 10: Identify the correct statement(s) for the classes from AMS.
  Marks 2

  a) Problem HAS_A specified marks

  b) Assignment IS_A Problem

  c) Problem HAS_A submission date

  d) Assignment HAS Programming-Assignment

  Answer: a), c), d)

  Explanation: Problem is physically contained in an Assignment, hence HAS_A.