**Object-Oriented Systems Analysis and Design Using UML, 2/e**

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**Class Design**

**Self-test Questions**

Top of Form

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Your Results: | | | | |
| The correct answer for each question is indicated by a This is the correct answer.. | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **1** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | When objects are being designed in detail the signature of each operation has to be specified. Which of the following statements is consistent with the term operation signature? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | Each operation in a class has the same signature. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **B)** | The operation name and the number of parameters are part of the operation signature. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | A class may not have two operations with the same name. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **2** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | Which of the following best describes when primary operations should be shown on class diagrams? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | All primary operations are shown on class diagrams in design. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | Primary operations are shown in class diagrams only if they modify attribute values. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **C)** | Primary operations are shown on design class diagrams if they are part of the public interface of the class. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **3** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | Encapsulation is best enforced by which of the following decisions regarding object visibility? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | All attributes and operations are private. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | All attributes are private and all operations are public. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **C)** | All attributes are private and public operations are kept to a minimum. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **4** | **INCORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | When is a UML interface used? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **A)** | It describes boundary classes. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | It describes an interface that a class may offer to another class. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | It describes the human-computer interface. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **5** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | Good coupling is best characterized by which of the following? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **A)** | Keeping the number of message types between objects to a minimum. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | Ensuring that sub-classes are not strongly linked to their superclass. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | Ensuring that operations in the same class are linked. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **6** | **INCORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | Which of the following is a beneficial consequence of good cohesion in a class? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **A)** | The attributes in the class will only be accessed by the operations of that class. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | The class will exhibit high levels of encapsulation. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | The operations in the class will be easier to maintain. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **7** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | The Liskov Substitution Principle is best described by which of the following? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **A)** | A derived object may be treated as if it is the base object. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | A derived object should be replaced by its base object. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | Derived objects should be used instead of base objects. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **8** | **INCORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | Which of the following statements best describes what is involved in the task of designing associations? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | It is concerned with how links between objects should be implemented. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **B)** | Its main focus is determining the multiplicity of the associations. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | It is concerned with specifying operations that may use the links between objects. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **9** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | How many collection classes could sensibly be used to implement a two-way many-to-many association? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | Two or more. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **B)** | Two. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **C)** | One. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **10** | **CORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | If there is a dependency constraint between two or more attributes which of the following statements applies? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | The value of none of the attributes should be changed. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | If the value of one of the attributes is changed then all the others must be updated by one or more synchronizing operations. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **C)** | Any change to the value of any of the attributes may require the other dependent attributes to be updated by one or more synchronizing operations. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
|  | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| **11** | **INCORRECT** | http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | Which of the following statements best describe the application of referential integrity during object design? | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | This is the correct answer. | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **A)** | An object may only refer to another object if they share a link. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio.gif | **B)** | When an object is deleted all objects to which it refers must be deleted. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |  |  |  | | --- | --- | --- | | http://highered.mcgraw-hill.com/olcweb/styles/v1_Europe/europe/radio_selected.gif | **C)** | Referential integrity only applies for one-to-one associations. | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | |  | |
| http://highered.mcgraw-hill.com/olcweb/styles/shared/spacer.gif | | | | |