Software Engineering

Assignment-7

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **10** **Total mark: 10 X 1 = 10**

For each of the following questions one or more of the given options are correct. Choose the correct options.

QUESTION 1:

Which of the following term means packing of data and functions into a single unit in a program?

a. Polymorphism
b. Abstraction
c. Encapsulation
d. Inheritance
e. Decomposition

Correct Answer: c. Encapsulation

Detailed Solution:

Encapsulation is defined as the wrapping up of data under a single unit. It is the mechanism that binds together code and the data it manipulates. So, among all the options, option **c.** encapsulation is the correct one.

QUESTION 2:

Which of the followings are important advantages of applying the principle of data hiding to a design solution?

a. Low cohesion
b. High coupling
c. Low fan out
d. Low coupling
e. High cohesion

Correct Answer: d. Low coupling
e. High cohesion

Detailed Solution:

Abstraction or data hiding lead to low coupling and high cohesion.

QUESTION 3:

Which of the followings are characterize the inheritance relation between two classes?

a. Encapsulation.
b. Aggregation
c. Generalization and specialization.
d. Polymorphism
e. “Has a” relation
f. “Is a” relation
g. Composition

Correct Answer: c. Generalization and specialization, **f.** “Is a” relation

Detailed Solution:

Inheritance represents generalization-specialization. It also represents “Is a” relation. So, option **c**. and **f**. are correct. Please refer slide no. 60-61 of the week 7 lecture material.

QUESTION 4:

Consider the statement: "An employee is either a worker or a manager." Assuming that Employee and Manager to be two classes, what can be said about the relationship between these two classes?

a. Association
b. Generalization-specialization
c. Aggregation
d. Polymorphism
e. Composition
f. Dependency

Correct Answer: b. Generalization-specializationm

Detailed Solution:

"An employee is either a worker or a manager."—this represents “Is a” relationship. “IS a” relationship represent by inheritance. Inheritance represents Generalization-specialization. So, option **b.** is the correct one.

QUESTION 5:

Which one of the following can be said about an abstract data type (ADT)?

a. It is a synonym for an abstract class
b. A data type that cannot be instantiated
c. A data type that can only be used through the operations defined on it
d. It is the same as a collection of data items
e. It is the same as an aggregation of data items

Correct Answer: c. A data type that can only be used through the operations defined on it

Detailed Solution:

An abstract data type (ADT) supports only the operations which are defined on it. So, option **c**. is the correct one.

QUESTION 6:

Which one of the following phrases indicates the relationship that exists between a class and its public parent class?

a. "...is a..."
b. "...has a..."
c. "...is implemented as a..."
d. "...uses a..."
e. "…implementation of…"

Correct Answer: a. "…is a…"

Detailed Solution:

Between a class and its parent class "Is a" relationship exist.

QUESTION 7:

Which one of the following sentences most closely describes "multiple inheritance" in object-oriented development?

a. Two classes inherit from each other
b. A base class has two or more derived classes
c. A child class has two or more parent classes
d. A child class has both an "is a" and a "has a" relationship with its parent class
e. A class is derived from its parent class, which in turn is derived from its parent class

Correct Answer: c. A child class has two or more parent class

Detailed Solution:

Multiple inheritance is a feature of some object-oriented computer programming languages in which an object or class can inherit characteristics and features from more than one parent object or parent class. Please refer slide no. 63 of week 7 lecture material.

QUESTION 8:

Which one of the following is true of a design solution that involves several deep inheritance hierarchies?

a. It is a sign of a good design as it increases reuse
b. It is a sign of a good design as it leads to sophisticated and versatile classes at the leaf level
c. It is a sign of good design as it increases polymorphic bindings
d. It is a sign of bad design as it breaks encapsulation
e. It is a sign of bad design as it causes repeated inheritance

Correct Answer: d. It is a sign of bad design as it breaks encapsulation

Detailed Solution:

Indiscriminate use of inheritance can result in poor quality programs. It increases coupling and lead to encapsulation weakness. So, option **d.** is correct.

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QUESTION 9:

Which of the following are **NOT** the characteristics of a good textual description accompanying a use case diagram?

a. Every use case description starts with a request from the system to an actor.
b. The textual description should be written using the development team's terminologies
c. Every use case description ends with the system producing all answers the actor asked for.
d. Every use case description is written from the actor's point of view.
e. Every use case description should identify the sequence of message exchanges required among the concerned classes.

Correct Answer: b. The textual description should be written using the development team's terminologies

e. Every use case description should identify the sequence of message exchanges required among the concerned classes.

Detailed Solution:

The textual description of a use case diagram need not to written using the development team's terminologies. The textual description of use case not describe the message exchanges among the classes. So, option **b.** and **e.** are the correct choices.

QUESTION 10:

Which of the following statements are **false** regarding UML models of a system?

a. Construction UML models help handle complexity in the problem
b. All UML models are design models of the system
c. All UML designs are models of the system
d. In general, from a system implementation, all UML models can be extracted
e. Dynamic UML models represent behavioral aspects of the system
f. Static UML models represent structural aspects of the system

Correct Answer: b. All UML models are design models of the system
d. In general, from a system implementation, all UML models can be extracted

Detailed Solution:

UML is a modelling language. Not a system design. All UML models can not be extracted.
"UML is a large and growing beast, but you don't need all of it in every problem you solve…"
Please refer slide no. 7 to 17 of week 7 lecture material.

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