**E.G.S PILLAY ENGINEERING COLLEGE, NAGAPATTINAM**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**MODEL SAT ans. key**

1. What is an Object?

The term object means a combination of data and logic that represents some real world entity. For example, consider a Ashok automobile, it can be represented in a computer program as an object.

1. What is Polymorphism?

Poly means many and morph means form. In the context of object-oriented systems, it means objects that can take on or assume many different forms. Polymorphism means that the same operation may behave differently on different classes. Booch defines polymorphism as the relation ship of objects of many different classes by some common superclass; thus, any of the objects designated by this name is able to respond to some common set of operations in a different way.

1. What is inheritance?

Inheritance is the property of object-oriented systems that allows objects to be built from other objects. Inheritance allows explicitly taking advantage of the commonality of objects when constructing new classes. The parent class is also known as the base class or super class.

1. What are the advantages of object-oriented system development?

* Higher level of abstraction
* Seamless transition among different phases of software development
* Encouragement of good programming techniques
* Promotion of reusability

1. What is dynamic inheritance?

* Allows objects to change and evolve over time
* It refers to the ability to add, delete, or change parents from objects at run time

1. List the relationships among classes.
   * Association
   * Super-sub structure (or) Generalization Hierarchy
   * Aggregation and a-part-of structure
2. What is OOSDLC? Compare with traditional approach

OOSDLC (object oriented software development life cycle) consists of three macro processes namely:

* Object oriented analysis
* Object oriented design
* Object oriented implementation

Object oriented systems development includes these activities namely:

(a) Object oriented analysis

(b) Object oriented design

(c) Prototyping

(d) Component based development

(e) Incremental testing

Comparison with traditional approach: This is advantageous over the traditional approach where change and refinement is highly impossible.

8) What are the four phases of OMT?

1.analysis

2.system design

3.obj design

4.implementation

9) What is software development process?

It is a process of change, refinement, transformation or addition to the existing product with in the process it is possible to replace one subprocess with a new one as long as a sub process has the same interface as the old one.

10) What is use case modeling?

Expressing the high -level processes and interaction with customers in a scenario and analyzing it is referred to as use-case modeling. A use case model represents the users view of the system or user needs.

11) What is object modeling?

Object modeling is a process by which the logical objects in the real world are represented by actual objects in the program. UML class diagram also referred to as object modeling, which is main static analysis diagram.

12) What is **Static and dynamic binding?**

The process of determining (dynamically ) at run time which function to invoke is termed dynamic binding, at compile time is called static binding.

13) List the guidelines for selecting classes in an application.

• Look for nouns and noun phrases in the cases.

• Some classes are implicit or taken from general knowledge.

• All classes must make sense in the application domain; avoid computer implementation classes - defer them to the design stage.

• Carefully choose and define class names.

14) How would you name classes?

* The class name should be singular.
* Choose the class name from standard vocabulary for the subject matter with which the clients or users are comfortable.
* The class name should reflect its intrinsic nature.
* Use readable names.
* Capitalize class names.
* Code should be consistent and easy to read.

15) Write about Multidatabase System.

A Multidatabase system (MDB) is a database system that resides unobtrusively on top of, says existing relational and objects databases and files systems and presents a single database illusion to Ms users

* Automatic generation of a unified global database schema from local DB.
* Provision of cross-database functionality by using unified schemata.
* Integration of heterogeneous DB systems with multiple DB
* Integration of data types other than relational data through the use of such tools as driver Generators.

Provision of a uniform but diverse set of interfaces

**16)** What are the steps for the view layer macro process?

The view layer macro process consists of two steps:

* For every class identified determine if the class interacts with a human actor. If so, perform the following ;otherwise, move to next the next class.
* Iterate and refine.

**17)** What applications are responsible for the view layer?

The view layer objects are responsible for two major aspects of the applications:

*1 Input -responding to user interaction:* The user interface must be designed o translate an action by user, such as clicking on a button or selecting from a menu, into appropriate response.

*2 Output\_displaying or printing business objects:* This layer must paint the best picture possible of tlic business objects for the user. In one interface, this may mean entry fields and list boxes to display an order and its items.

18. What are the Interfaces of the Database?

1 Database schema and data definition language: A DDL (Data definition language) is the language used to describe the structure of and relationships between objects stored in a database.

2 Data manipulation language and query capabilities: ADML (Data manipulation language) is the language that allows users to access and manipulate is the standard DML for relational DBMSs

19. What do you mean by Database Models? Mention its types.

* Data model is a collection of logical constructs used to represent the data structure and data relationship within the DB.
* Hierarchical Model: This represents data as a single rooted tree.
* Network Model: A network DB model is similar to a hierarchical DB's, with one distinction.
* Relational Model: Of all the DB models, the relational model has the simplest, most uniform structure and is the most commercially widespread.

20. What are the categories for the data lifetime?

* Transient results to the evaluation of expressions
* Variables involved in procedure activation
* Global variables and variables that are dynamically allocated
* Data that exist between the executions of a program
* Data that exist between the versions of a program

Data that outlive a program

21. List the object oriented corollaries and axioms?

Corollaries:

1. Uncoupled design with less information content.

2. Single purpose.

3. Large number of simpler classes.

4. Strong mapping *5.* Standardization

6. Design with Inheritance

Axioms:

1. Independence axiom

2. Information axiom.

22. What is the relationship between coupling and cohesion?

Coupling denotes the measure of strength of association established by a connection from

one object to another.

Cohesion is the interaction between software components or objects. Highly cohesive element can lower coupling because only minimal information is passed between components.

23. What do you mean by usability Testing?

It is the effectiveness, efficiency and satisfaction with which a specified set of users can achieve a specified set of tasks in particular environments. The ISO definition requires

* Defining tasks. What are the tasks?
* Defining users. Who are the users?

A means for measuring effectiveness, efficiency and satisfaction. How do we measure usability?

24. List the graphical diagrams defined by UML.

1 Class diagram (static)

2 Use-case diagram

3 Behavior diagram (dynamic)

3.1 Interaction diagram

3.1.1 Sequence diagram

3.1.2 Collaboration diagram

3.2 State chart diagram

4 Implementation diagram

4.1 Component diagram

4.2 Deployment diagram

25. What is a meta-model?

It is a model of modeling elements. This assures consistency among diagrams. This has made possible for a team to explore ways to make the modeling language much simpler by in a sense unifying the elements of the unified modeling language

26. What is black & white box testing?

. White box testing: This assumes that the specific logic is important and must be tested guarantee the system's proper functioning of the white box is in error-based testing, when you already have tested all objects of an application and all external or public methods of an object that you believe to be greater importance.

27. What is Bottom-up *Testing?*

This starts with the details of the system and proceeds to higher levels by a progressive aggregation of details until they collectively fit the requirements for the system. In this approach, you start with the methods and classes that call or rely on no methods and classes that use only the bottom level ones already tested.

28. List the objective of testing.

* Testing is the process of executing a program with the intent of finding errors.
* A good test cases is the one that has s high probability of detecting an as-yet undiscovered error
* A successful test case is the one that detects as -yet undiscovered error.

29. Summarize the impact of an object orientation on testing.

* Some types of errors could become less plausible .
* Some types of errors could become more plausible
* Some new types of errors might appear

30. What are the kinds of errors you might encounter when you run your program?

*1.Language Errors:*

2. *Run time errors:*

3. *Logic errors:*