

Technical Placement Papers:

1. With an example explain what is virtual function?

A) A virtual function in object-oriented programming (OOP) is a member function in a base class that you can override in a derived class. This is known as runtime polymorphism or dynamic dispatch.

2. Explain briefly the features of OOPS?

A) Object-Oriented Programming (OOP) has the following key features:

Encapsulation: Wrapping data and methods into a single unit (class) to protect data from unauthorized access.

Abstraction: Hiding implementation details and showing only essential functionalities to the user.

Inheritance: Allowing one class to inherit properties and methods from another, promoting code reusability.

Polymorphism: Enabling one function or method to behave differently based on input or context, achieved through method overloading or overriding.

3. Explain the difference between overriding and overloading.

A) Overriding and overloading are two fundamental concepts in object-oriented programming, often used to provide flexibility and maintainability in code.

4. Explain what is linking in brief?

A) Linking in SEO refers to the process of creating hyperlinks that connect one web page to another, either within the same website (internal linking) or to external

websites (external linking). Links help search engines discover and index content, improve website navigation, and establish authority by passing link equity.

4. What is Client Server technology?

A) Client-Server Technology is a model for distributing computing tasks between two entities: clients and servers. This technology is commonly used in networked environments to provide services, share resources, and facilitate communication.

5. What is a ROM?

A) ROM stands for Read-Only Memory. It is a type of non-volatile memory used in computers and electronic devices. Non-volatile means that the data stored in ROM remains even when the device is powered off.

6. Explain what is a RAM?

A) RAM (Random Access Memory) is a type of computer memory that temporarily stores data and instructions that a computer's processor needs to access quickly. It is a volatile memory, meaning it loses all its data when the computer is turned off or restarted.

7. State the difference between RAM and ROM?

A) RAM (Random Access Memory):

Type: Volatile memory (data is lost when power is off).

Function: Temporarily stores data that the CPU needs during operation.

Usage: Used for running programs and processes.

Write/ Read: Both read and write operations are allowed.

Speed: Faster than ROM.

ROM (Read-Only Memory):

Type: Non-volatile memory (data remains even when power is off).

Function: Stores permanent data and instructions (e.g., firmware).

Usage: Used to store essential programs like the computer's boot-up instructions.

Write/ Read: Generally read-only; writing is limited or not possible in traditional ROM.

Speed: Slower compared to RAM.

8. Explain what is factory method?

A) The Factory Method is a design pattern in software development, part of the creational design patterns category. It provides an interface for creating objects in a superclass but allows subclasses to alter the type of objects that will be created.

9. Can you write a function to remove duplicates in array?

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A) def remove_duplicates(arr):  
    return list(set(arr))
```

10. Explain what is aggregation and composition?

A) Aggregation:

Aggregation represents a "has-a" relationship between two objects. It is a type of association where one object is a part of another object, but both objects can exist

independently. If the parent object is destroyed, the child objects can still exist. This relationship is considered a "looser" relationship.

Example: A Library can aggregate Books. If the library is closed or removed, the books still exist independently.

Key points:

The lifetime of the child objects is not dependent on the parent object.

It models a "whole-part" relationship, but the part can exist independently of the whole.

Composition:

Composition is a stronger form of aggregation. It also represents a "has-a" relationship, but in this case, the child object cannot exist without the parent object. If the parent object is destroyed, the child objects are also destroyed. This is a "stronger" form of relationship because the child's existence is tied to the parent's existence.

Example: A House can compose Rooms. If the house is destroyed, the rooms cease to exist as well.

Key points:

The lifetime of the child object is dependent on the parent object.

It represents a "whole-part" relationship where the part cannot exist without the whole.