1. **List the number of ways in which a process can be deployed.**

There usually exists three ways with the help of which a process can be implemented. They are as follows:

* Through the use of Enterprise Manager Console
* Through the use of Weblogic Scripts
* Through the use of JDeveloper

1. **List the various types of design patterns that are used in the implementation of SOA**

Here is the list of multiple types of design patterns that are widely used in the process of implementing SOA.

* Delayed response or asynchronous
* Fire and forget
* Synchronous

1. **Define DVM and its utility in the SOA implementation process**

DVM is also known by Domain Value Map. It is defined as a static mapping between the trigger system and the source. It can also be used in transformations. Moreover, this value can be changed with the help of SOA Composer.

1. **Define service-component architecture (SCA)**

SCA encompasses diverse technologies, programming languages, frameworks and platforms for Web service components and for the methods used to connect them. SCA can be broken down into four major parts or models:

* The **assembly** model, which defines how components are combined, linked and packaged as services independent of the programming language.
* The **implementation** model, which defines how services are packaged and accessed for specific programming languages.
* The **policy** model, which defines service policies independent of the programming code.
* The **bindings** model, which defines how components are accessed independent of the programming code.

1. **Types of Adapters?**

Transactional & Non- Transactional Adapter

* Transactional: Database, JMS, AQ, MQ adapters
* Non- Transactional: File & FTP adapter

1. **Multiple Directories supported in File & FTP adapter?**

The Oracle File and FTP Adapters support polling multiple directories within a single activation. You can specify multiple directories in JDeveloper as opposed to a single directory. This is applicable to both physical and logical directories.

1. **What is the use of Trigger file?**

By default, polling by inbound Oracle File and FTP Adapters start as soon as the endpoint is activated. However, if you want more control over polling, then you can use a file-based trigger. Once the Oracle File or FTP Adapter finds the specified trigger file in a local or remote directory, it starts polling for the files in the inbound directory.

For example, a BPEL process is writing files to a directory and a second BPEL process is polling the same directory for files. If you want the second process to start polling the directory only after the first process has written all the files, then you can use a trigger file. You can configure the first process to create a trigger file at the end. The second process starts polling the inbound directory once it finds the trigger file.

1. **Which configuration file store MDS configurations?**

The adf-config.xml file is a configuration file that is used to store MDS Configurations.

1. **How to Poll Single file from FTP/File location which has multiple files?**

Let’s take one example if we have include file wild card as \*.txt and there are 2 files available at File/FTP Location. So read operation will read both the file and create two instances and created time will be same for both the instance. To avoid such scenario and read only one file at a time, we need to use below property in jca file.

<property name="SingleThreadModel" value="true"/>  
<property name="MaxRaiseSize" value="1"/>

1. **Calling Secure Services from BPEL**

There are two popular ways of securing the so-called webservices and as to how do we invoke them from BPEL???

**BasicServices:**

Basic services would require authentication information i.e., the username/password to be passed in the HTTP Header.

<property name="basicHeaders">credentials</property>  
<property name="basicUsername">manojnair</property>  
<property name="basicPassword">hello@123</property>

**Services Pertaining to WS-Security:**  
These services are required to send authentication information ( username / password) as WS-Security tokens in SOAP Envelope to access.

**Adding WS-Security tokens in BPEL:**

Add the following properties in bpel.xml under the partner link for that service.  
<property name="wsseHeaders">credentials</property>  
<property name="wsseUsername">manojnair</property>  
<property name="wssePassword">hello@123</property>

**How can one add the  HTTP Authentication in BPEL:**

Add the following properties in deployment descriptor i.e., the bpel.xml, under the partner link for that service.

<property name="httpHeaders">credentials</property>  
<property name="httpUsername">manojnair</property>  
<property name="httpPassword">hello@123</property>

1. What are the types of messages that are supported by JMS?

**The types of messages that are supported by JMS are**

* Stream Messages
* Text Messages
* Map Messages
* Bytes Messages
* Object Messages

1. [**Explain XA and NON-XA Data Sources and** Get Active Unit Of Work **Property**](http://www.soawork.com/2014/04/xa-non-xa-active-unit-of-work-db-adapter.html)

**Two tables created in same database**

Case 1: When no Catch All block added to BPEL flow

* Both Data Sources NON-XA & "Get Active Unit of work" checked or unchecked:   First Insert will work if there is error in second insert. So no effect of “Get Active Unit of Work” in Non-XA Data Source.
* Both Data Sources XA & “Get Active Unit Of Work” is unchecked: First Insert will rollback if there is error in second insert.
* Both Data Sources XA & “Get Active Unit Of Work” is checked: First insert will rollback if there is error in second insert.

Case 2: When there is Catch All Block added to BPEL Flow

* Both Data Sources NON-XA & "Get Active Unit of work" checked or unchecked:   First Insert will work if there is error in second insert. So no effect of “Get Active Unit of Work” in Non-XA Data Sources.
* Both Data Sources XA & “Get Active Unit Of Work” is unchecked: First Insert will work if there is error in second insert.
* Both Data Sources XA & “Get Active Unit Of Work” is checked: First insert will rollback if there is error in second insert.

**Two tables created in two different databases**

Case 1: When there is Catch All Block added to BPEL Flow

* Both Data Sources NON-XA & "Get Active Unit of work" checked or unchecked:   First Insert will work if there is error in second insert. So no effect of “Get Active Unit of Work” in Non-XA Data Sources.
* Both Data Sources XA & “Get Active Unit Of Work” is checked: First insert will work if there is error in second insert.
* Both Data Sources XA & “Get Active Unit Of Work” is unchecked: First insert will work if there is error in second insert.
* Both Data Sources XA & “Get Active Unit Of Work” is checked & below property is set: First insert will rollback if there is error in second insert.
* Both Data Sources XA & “Get Active Unit Of Work” is unchecked & below property is set: First insert will rollback if there is error in second insert.
* Both Data Sources NON-XA & “Get Active Unit Of Work” is checked & below property is set: First insert will insert if there is error in second insert.

Property: <property name="bpel.config.transaction" many="false" type="xs:string">required</property>

1. **What is file rejection handler in read operation of file adapter and how to use it?**

As you notice when we poll the file and file is corrupt i.e. not in correct format then we don’t see any instance in em console and file got deleted so we never come to know that what went wrong with file as there is no instance on em console.

Solution to above problem is error handling. We have two types of error handling for file and ftp adapter.

**In-Build error handling**

By default adapter has in-build error handling that will put the message to rejected folder if file which it try to read is corrupt i.e. not in correct format.

Rejected Messages folder path:  C:\Oracle\Middleware\user\_projects\domains\base\_domain\rejmsgs

**Custom error handling using Fault Handling Framework**

Use Fault Handling Framework to handle errors when we encounter corrupt file during file polling.

1. **What are the various BPEL activities in SOA 11g?**
   * Web Service: invoke, partner link, Receive, reply
   * Standard Activities: assign, compensate, empty, terminate, throw, and wait
   * Structured Activities: flow, pick, scope, sequence, and switch, while
2. **What is the significance of target Namespace in a WSDL?**
   * It is the one which uniquely identifies WSDL; when WSDL is used, it should be identified using its targetNamespace
3. **Whether two XSD files can be imported, which are having same elements and same file name?**
   * Yes, we can if they have different targetNamepsace
4. **In Oracle SOA 11g, what is difference between imports & include?**
   * The fundamental difference between include import & include
   * import is that you must use **import** to refer to declarations or definitions that are in a different target namespace
   * you must use **include** to refer to declarations or definitions that are in the same target namespace
5. **How can we secure our web services using Oracle SOA Suite?**
   * Authorization
   * Authentication
   * Transport Level Security
   * Application Level Security
6. **How to ensure that parallel flows implemented through Flow activity are ‘really’ parallel?**
   * Set the partner link attribute “nonBlockingInvoke” to true
7. **Can I call an asynchronous process from a synchronous process?**
   * Yes, synchronous process can call asynchronous process
8. **Are there any limitations like, how much time is permissible for async process to return?**
   * There are no limitations. Maximum default time permissible is 45sec and it could be increased depending on the business scenario using the attribute SyncMaxWaitTime
9. **Difference between Mediator & OSB?**

Mediator component provides certain localized mediation capabilities with the Business Service Layer. Thus, the lifecycle of a Mediator component is tightly coupled with that of the SOA composite application that provides the application logic. Mediator provides any abstraction that the Business Process needs within the context of a single composite. Mediator provides the following capabilities with the context of a single composite application:

* + Connectivity abstraction from a business process
  + Inline data transformation / mapping
  + Message filtering
  + The functionality is available within the context of a single SOA composite
* application.
* E.g. Mediator can be used to expose a BPEL process to multiple services defined on the same composite.
  + Mediator does not focus on key capabilities required for the SOA
* Infrastructure category such as traffic shaping and end-point management.
  + Mediator should not be used to share services at an enterprise-wide level.

Oracle Service Bus provides enterprise service re-use and management. Oracle Service Bus enables effective de-coupling of systems and lifecycles within enterprise architecture.

Oracle Service Bus is a stateless engine that is optimized for use cases with short-lived single transaction semantics. Below are examples of use cases that require a fullfledged orchestration engine and should not be implemented on Oracle Service Bus:

* + Service needs to maintain state
  + Service requires complex transaction management
  + Requires multiple transactions
  + Compensation logic required on rollback
  + Short or long-lived process
  + Exception handling requires Human workflow
  + Service needs to handle asynchronous callbacks reliably

Thus, Oracle Service Bus provides a clean separation between clients, business processes and back-end information systems. This virtualization layer can be used to inject various IT concerns such as traffic shaping, alerting, and fault isolation.

1. **Can you explain the difference between architecture followed in 10g & 11g?**

Given below are the differences between 10g and 11g:

* In 11g, SCA architecture is followed but not in 10g.
* In 11g, all of the SOA components (like BPEL, ESB etc.) are related to project can be deployed at once as a single unit using composite.xml file. In 10g, these components need to be deployed individually to the respective servers.
* App server container for 11g is Web Logic Server while for 10g is OC4J.
* In 11g, Enterprise Manager takes care of all SOA components while in 10g separate consoles are maintained for each component.

1. **What is OSB Throttling and why we need OSB Throttling?**

Throttling is termed as “regulate the flow”

* Oracle Service Bus has throttling feature and by using that feature we can control number of requests sent to target service
* Every system has its own capacity means it can process only certain number of message at one time, if we try to send messages beyond its capacity then that system’s performance can degrade or in worst case it can crash
* So to avoid all this we can use OSB throttling feature to send limited messages to target system

1. **How we can connect to Database from OSB?**

* We need to first create one JCA based DB adapter to connect to the database
* Then we need to create that JCA based Business Service
* We need to call that Business Service to perform database operations

1. **Is there any other way to connect to Database without using JCA adapter?**

* Yes we can use XQuery execute-sql() function to connect to database
* But it is better to use JCA adapters

1. **How can we achieve parallel processing in OSB?**

* SPLIT JOINS are meant for parallel processing
* So we need to implement Split – Join resources to achieve parallel processing

1. **What are the transformation resources available in OSB?**

* In OSB we can use XQuery or XSLT for transforming messages

1. **How to poll file in OSB?**

* To poll file in OSB, use file transport from Proxy Service and define required components like  
  1. File Mask  
  2. Polling Interval  
  3. Read Limit  
  4. Post Read Action, etc

1. **How can you end a Proxy flow without using if then else logic?**

* You have to use Reply(with Success) action to end the Proxy Flow where you want

1. **How can you jump control from one stage to next stage without using if then else logic?**

* You have to use Skip action at the end of the stage.

1. **For a JMS Queue Subscriber Proxy Service, how can you ensure that the JMS Message is retried if an error occurs during processing?**

* One XA Connection Factory should be created to access that JMS queue and that Connection Factory should be used in the URL

1. **Explain File and FTP transport for Proxy & Business Service in OSB?**

* Proxy Service for FTP/File Transport is used for Reading files from source directory
* Similarly, Business Service for FTP/File Transport is used for writing files onto destination directory

1. **What are Service Data Objects (SDO)?**

* Service Data Objects is a technology that allows heterogeneous data to be accessed in a uniform way
* A SDO exposes any data source as a service, which enables retrieval & manipulation of the data in an XML format through web service

1. **What are Enterprise Registry and Service Registry?**

* To extend the idea of service life cycle management ideally an ER & SR such as OER & OSR should be considered for managing services in an enterprise across development and production run time environment
* An ER & SR enables service descriptions and artifacts to be centrally located, stored and versioned and can be monitored according to SOA Governance
* Services created in SOA can be stored in Enterprise Registry for design time or SOA Governance process & can be accessed via Service Registry
* A Service Registry enables application to look up services using a service key for location independence

1. **What is polling in DB Adapter?**

Oracle SOA Database Adapters provide a polling mechanism that will periodically query a table to see if a there is a new or changed record.  If so, it can trigger a BPEL process.

1. **What is tokenizer in Oracle SOA.**

Token configurations which really can help administrators in configuring or overriding external Web Service Reference parameters like the protocol ( http, oramds or https ),  the remote host etc. And more important if you do it right you can kick out the all those Soa Suite deployment plan

1. **What is minimum file age in DB/FTP adapter?**

The minimum file age of files to retrieve. For example, this polling parameter enables a large file to be completely copied into the directory before it is retrieved for processing. The age is determined by the last modified time stamp. For example, if you know that it takes three to four minutes for a file to be written, then set the minimum age to five minutes. If a file is detected in the input directory and its modification time is less than five minutes older than the current time, then the file is not retrieved because it is still potentially being written to.