

# **Oracle**

Exam 1z0-451

# **Oracle SOA Foundation Practitioner**

Version: 9.1

[ Total Questions: 121 ]

#### **Question No: 1**

What is true when implementing human reactions that are part of composite applications using the human task component in SOA 11g? (Choose 3)

- A. The human task configuration is stored in the "task" metadata file.
- **B.** The human task service uses an identity directory, such as LDAP, to determine people rules and privileges.
- **C.** The human task service engine executes all the human task components in SOA composite application.
- **D.** The human task is not available in standalone mode is always associated with BPEL process service component.
- **E.** The wordlist application can also be used to change the human task configuration.

# Answer: A,B,C

# **Explanation:**

The Human Task Editor enables you to specify human task metadata, such as task outcome, payload structure, assignment and routing policy, expiration and escalation policy, notification settings, and so on. This information is saved to a metadata task configuration file with a .task extension.

Reference (http://docs.oracle.com/cd/E16764\_01/integration.1111/e10224/bp\_hwfmodel.htm)

The human task service component uses an identity directory, such as LDAP, to determine people's roles and privileges.

Reference (http://docs.oracle.com/cd/E14571\_01/integration.1111/e10224/bp\_introhwf.htm)

During runtime, the business logic and processing rules of the human task service component are executed by the human workflow service engine. Each service component (BPEL process, human workflow, decision service (business rules), and Oracle mediator) has its own service engine container for performing these tasks. All human task service components, regardless of the SOA composite application of which they are a part, are executed in this single human task service engine.

Reference (http://docs.oracle.com/cd/E14571\_01/integration.1111/e10224/bp\_introhwf.htm)

**Question No: 2** 

What is the purpose of Oracle BPEI process manager dehydration store?

- **A.** The dehydration store is used to save all state information in a database to avoid showing down the system due to too much IO.
- **B.** The dehydration store is used to store the process state for long-running process which will allocate memory to be given back to the system and will not consume resources while waiting.
- **C.** The dehydration store is good way to preserve long running processes, and it prevents any location of state or reliability if a system shut down

#### **Answer: C**

# **Explanation:**

Oracle BPEL Process Manager Dehydration Store:

Oracle BPEL Process Manager uses the dehydration store database to maintain long-running asynchronous processes and their current state information in a database while they wait for asynchronous callbacks. Storing the process in a database preserves the process and prevents any loss of state or reliability if a system shuts down or a network problem occurs.

#### Reference

(http://docs.oracle.com/cd/E15586\_01/fusionapps.1111/e14496/soa\_trouble.htm)

# **Question No: 3**

Identify the correct order in which the fault management framework attempts to identify a fault policy binding?

- 1. BPEL process or Oracle mediator service component defined in the composite xml file.
- 2. SOA composite application defined in the composite XML file.
- 3. Reference binding component defined in the composite XML file.
- **A.** 1, 2, 3
- **B.** 3, 1, 2
- **C.** 3, 2, 1
- **D.** 1, 3, 2

**Answer: B** 

# **Explanation:**

12.4.1.1 Understanding How Fault Policy Binding Resolution Works A fault policy bindings file associates the policies defined in a fault policy file with the SOA composite application or the component (service component or reference binding component). The framework attempts to identify a fault policy binding in the following order:

Reference binding component defined in the composite.xml file.

BPEL process or Oracle Mediator service component defined in the composite.xml file. SOA composite application defined in the composite.xml file.

Reference (http://docs.oracle.com/cd/E23943\_01/dev.1111/e10224/bp\_faults.htm)

# **Question No: 4**

Oracle SOA suite 11g configured with the ...... application that enables the composite application components to send application?

- A. Workload
- B. User messaging service
- C. Worklist
- D. Workflow

#### **Answer: B**

# **Explanation:**

Oracle User Messaging Service provides a common service responsible for sending out messages from applications to devices. It also routes incoming messages from devices to applications.

# Reference

(http://docs.oracle.com/cd/E17904 01/integration.1111/e10223/15 message.htm)

#### **Question No:5**

Which three components can be used to configure a human task? (Choose 3)

- A. Task management service.
- **B.** Task routing service.
- C. Data service.
- **D.** Identity service.
- E. Security service

# Answer: A,B,D

# **Explanation:**

The Human Workflow Service is made up of a set of workflow components including:

- The Task Management Service (\*)
- Worklist Service
- User Metadata Services
- Task Rules Service, and
- Task Routing Service (\*)
- , and utilizes several components itself such as
- the User Messaging Service
- Identity Management Service, and
- Rules Service to perform the various actions required. Internally the workflow services use these components through their public APIs, just as any other service would. In addition, the User Messaging Service
- Identity Service (\*), and
- Rules Service are all pluggable so you are free to replace the standard functionality of those with your own specialized functionality if desired.

Reference (http://alloracletech.blogspot.se/2011/05/iz0-451-q-53.html)

# **Question No: 6**

For business rules, a rules dictionary contains one or more definitions of:

facts; constraints; functions; rule sets. Identify the correct statement that defines the facts.

- **A.** Has a collection of facts type, global variables constants function and rulesets.
- **B.** Are declared as: "if condition than action".
- **C.** Have an action: assign, assert, call function (or java method)
- **D.** Are data or business objects on which the rule engine evaluates the rule condition.

#### Answer: D

# **Explanation:**

Are data or business objects on which the rule engine evaluates the rule condition.

Reference (http://alloracletech.blogspot.se/2011/05/iz0-451-q-54.html)

Facts: Facts are the objects that rules reason on.

Business rule concepts:

Before we implement our first rule, let's briefly introduce the key components which make up a business rule. These are:

Facts: Represent the data or business objects that rules are applied to.

Rules: A rule consists of two parts, namely, an IF part that consists of one or more tests to be applied to a fact(s), and a THEN part that lists the actions to be carried out, should the test evaluate to true.

Rule Set: As the name implies, it is just a set of one or more related rules that are designed to work together.

Reference (http://my.safaribooksonline.com/book/databases/oracle/9781849680189/using-business-rules-to-define-decision-points/ch07lvl1sec01)

# **Question No:7**

Using the Oracle BPM worklist application, a user can do which three things. (Choose 3)

- A. Perform authorized actions on tasks.
- **B.** Create personal tasks.
- **C.** Define delegation rules.
- **D.** Define user groups.
- **E.** Define task routing policy.

# Answer: A,B,C

#### **Explanation:**

- A. Perform authorized actions on tasks.
- B. Create personal tasks.
- C. Define delegation rules.

Using Oracle BPM Worklist, task assignees can do the following:

- 1. Perform authorized actions on tasks in the worklist, acquire and check out shared tasks, define personal to-do tasks, and define subtasks.
- 2. Filter tasks in a worklist view based on various criteria.

- 3. Work with standard work queues, such as high priority tasks, tasks due soon, and so on. Work queues allow users to create a custom view to group a subset of tasks in the worklist, for example, high priority tasks, tasks due in 24 hours, expense approval tasks, and more.
- 4. Define custom work queues.
- 5. Gain proxy access to part of another user's worklist.
- 6. Define custom vacation rules and delegation rules.
- 7. Enable group owners to define task dispatching rules for shared tasks.
- 8. Collect a complete workflow history and audit trail.
- 9. Use digital signatures for tasks.

Reference (http://docs.oracle.com/cd/E15586\_01/integration.1111/e10224/bp\_worklist.htm)

#### **Question No:8**

The types of services with transactional behavior that can be implemented in Oracle database adapters and......

- **A.** File adapters.
- **B.** Service data objects.
- C. SOAP Endpoints.
- **D.** Active server objects.

#### **Answer: B**

#### **Explanation:**

Knowledge is not required about how to access a particular back-end data source to use SDO in an SOA composite application. Consequently, you can use static or dynamic programming styles and obtain connected and disconnected access.

Enterprise JavaBeans are server-side domain objects that fit into a standard component-based architecture for building enterprise applications with Java. These objects become distributed, transactional, and secure components.

**Question No:9** 

Two types of services with transactional behavior that can be implemented in Oracle SOA suite 11g database adapters and......

- **A.** File adapters.
- **B.** Service data objects.
- **C.** SOAP Endpoints.
- **D.** Active server objects

## **Answer: B**

**Explanation:** Knowledge is not required about how to access a particular back-end data source to use SDO in an SOA composite application. Consequently, you can use static or dynamic programming styles and obtain connected and disconnected access.

Enterprise JavaBeans are server-side domain objects that fit into a standard component-based architecture for building enterprise applications with Java. These objects become distributed, transactional, and secure components.

#### **Question No: 10**

Your Oracle SOA composite is running in production but due to new government mandate you have to update the security policy based on Oracle web service manager. What are your options to update the security policy?

- **A.** Attach updated policy via the command line interface.
- **B.** Attach updated policy in ideveloper and redeploy component.
- **C.** Attach policy in enterprise model console test it and reattach with out redeployment.
- **D.** Attach policy via web logic admin console after deployment.

## Answer: A,B,C

# **Explanation:**

There are three ways to attach OWSM Policies:

- a) Via IDE's ex: JDeveloper
- b) Via Command Line Tooling ex: WLST
- c) Via Web based user interface ex: FMWCTL

Reference (https://blogs.oracle.com/owsm/entry/owsm\_concepts\_11g)

Reference (http://alloracletech.blogspot.se/2011/06/iz0-451-q-58.html)

OR

There are only 2 ways you can attach web services policy to a SCA composite:

JDeveloper and the Enterprise Manager console.

Attaching Policy Files to Web Services and Clients

There are two ways to attach policies to Web service clients and Web services: at the client and service design time, and post deployment.

Post-deployment, you attach security and management policies to SOA composites, ADF, and WebCenter applications using the Oracle Enterprise Manager Fusion Middleware Control. This method provides the most power and flexibility because it moves Web service security to the control of the security administrator.

At design time, Oracle JDeveloper automates ADF and SOA client policy attachment. Or, you can attach Oracle WSM security and management policies to applications programmatically. You typically do this using your favorite IDE, such as Oracle JDeveloper.

Reference (http://docs.oracle.com/cd/E25054\_01/web.1111/b32511/configuring.htm)

#### **Question No: 11**

The event delivery network is designed for handling asynchronous messaging arising from a business event or service and supports......

- **A.** Request-response model.
- **B.** Publish-subscribe declarative model.
- **C.** Fire-forget model.
- **D.** Request-reply model.

#### **Answer: C**

#### **Explanation:**

Events are an important element of SOA infrastructures. Events carry information between SCA Components – without direct dependencies or interaction between these components. Events are published by components in a fire-and-forget style into the Event Delivery Network.

**Question No: 12** 

Oracle SOA suit 11g has two components, mediator and Oracle service bus. Both provide transformation and validation functionality. Which two statements are true?

- **A.** The mediator is an intra-composite component responsible for brokering communications between components that make up a composite, enabling transformation, routing and payload validation inside the component.
- **B.** The mediator is stand alone component responsible for brokering communications between service end points enabling transformation, routing and payload validation.
- **C.** Oracle service bus is stand alone component responsible for brokering communications between service endpoints enabling transformation, routing and pay load validation.

Answer: A,C

# **Question No: 13**

Human task service prevents tasks to users via which channels? (Choose 2)

- **A.** Oracle BPM worklist application.
- B. Oracle forms based notification.
- **C.** Actionable notification sent via sms.
- D. Actionable notification sent via Email.

# Answer: A,D

# **Explanation:**

- A. Oracle BPM worklist application.
- D. Actionable notification sent via Email.

Here is the excerpt from from Developers Guide:

The human task service component presents tasks to users through a variety of channels, including the following:

- Oracle BPM Worklist, a role-based application that supports the concept of supervisors and process owners, and provides functionality for finding, organizing, managing, and performing tasks.
- Worklist functionality is also available as portlets that can be exposed in an enterprise portal.
- Notifications can be sent to email, phone, SMS, and other channels. Email notifications can be actionable, enabling users to perform actions on the task from within the email client without connecting to Oracle BPM Worklist or Oracle WebLogic Server.

Reference (http://docs.oracle.com/cd/E25054\_01/dev.1111/e10224/bp\_introhwf.htm)

# **Question No: 14**

- A. Implementing applications based on reusability.
- B. Implementing business applications using BBEL.
- **C.** A programming model for building applications based on service oriented architecture.
- **D.** Composition of services and creation of service components including the reuse of existing services.
- **E.** Implementing procedural models to built software applications.

Answer: A,C,D

#### **Question No: 15**

Which two components can be found on SAO component palette of Oracle SOA component?

- A. BPEL process
- B. Partner link.
- C. Human task.
- D. ADF-BC.

# Answer: A,C

# **Explanation:**

A. BPEL Process

C. Human Task

The component palette provides the various resources that you can use in a SOA composite. It contains the following service components and adapters:

Service components: Displays the BPEL process, business rule, human task, Oracle Mediator, and spring components that can be dragged and dropped into the designer.

Service adapters: Displays the JCA adapter (AQ, file, FTP, database, JMS, MQ, Oracle Applications, and socket), Oracle BAM binding component, B2B binding component, EJB

binding component, ADF-BC binding component, direct binding component, HTTP binding component, and web service binding component that can be dragged into the left or right swimlanes.

If the Component Palette does not display, select Component Palette from the View main menu.

Reference (http://docs.oracle.com/cd/E15586\_01/integration.1111/e10224/fod\_intro2.htm)

#### **Question No: 16**

A BPL process uses to invokes to insert data into two Oracle database tables the first invokes inserts data into master table and the second invokes insert data into detail table?

Identify the statement that will undo both transactions by throwing the fault if either one of the transaction faults?

- A. throw name-"throw" fault name "bpebrsqlecception"
- B. throw name-"throw" fault name "bpelx:rollback"
- C. throw name-"throw" fault name "bpetxnuntime fault"
- D. throw name-"throw" fault name "bpetxfault"

#### **Answer: B**

# **Explanation:**

- 1. Explicitly throwing the bpelx:rollbackFault
- < throw name="Throw 1" faultName="bpelx:rollback"/>

we can throw the rollback fault which will result in to the rollback of all activities part of the rolled back transaction.

Reference (http://murtyatsoa.blogspot.se/2011/06/rollbacking-in-bpel.html)

## **Question No: 17**

Which two statements are true about proxy service in Oracle service bus (OSB)?

- **A.** Proxy services are OSB definitions of enterprise services that exchange messages during businesses processes and they do not have a pipeline
- **B.** Proxy services are definitions of generic intermediary web services that are hosted locally on Oracle service bus.
- **C.** Proxy services can be configured using Oracle jdeveloper.
- **D.** Message handling capabilities of proxy service are implemented with message flow definitions using a pipeline.

# Answer: B,D

# **Explanation:**

- B. Proxy services are definitions of generic intermediary web services that are hosted locally on Oracle service bus.
- D. Message handling capabilities of proxy service are implemented with message flow definitions using a pipeline.

Oracle Service Bus proxy services are definitions of intermediary Web services that Oracle Service Bus implements and hosts locally

Reference (http://docs.oracle.com/cd/E14571\_01/doc.1111/e15867/ configuringandusingservices.htm) proxy service implementations are defined in message flow definitions using components such as pipelines, branch nodes, and route nodes.

Reference (http://docs.oracle.com/cd/E13171\_01/alsb/docs26/concepts/service\_composition.html)

# **Question No: 18**

Which these are valid methods to assign users, groups, and application rules during design time, to tasks in a human workflow? (Choose 3)

- A. Assign users, groups, and application rules using XQuerry
- **B.** Assign users, groups, and application rules using LDAP rules and privileges.
- **C.** Assign users, groups, and application rules using business rules.
- **D.** Assign users, groups, and application rules using Oracle Haley.
- **E.** Assign users, groups, and application rules using a delimited string of users, groups, or application roles.

# Answer: B,C,E

# **Explanation:**

- B. Assign users, groups, and application rules using LDAP rules and privileges.
- C. Assign users, groups, and application rules using business rules.
- E. Assign users, groups, and application rules using a delimited string of users, groups, or application roles.
- 27.2.1.2 Static, Dynamic, and Rule-Based Task Assignment

There are different methods for assigning users, groups, and application roles to tasks.

1. Assign tasks statically

You can assign users, groups, and application roles statically (or by browsing the identity service). The values can be either of the following:

A single user, group, or application role (for example, jstein,

CentralLoanRegion, or ApproverRole).

A delimited string of users, groups, or application roles (for example, jstein, wfaulk, cdickens).

2. Assign tasks dynamically

You can assign users, groups, and application roles dynamically using XPath expressions. These expressions enable you to dynamically determine the task participants at runtime. For example, you may have a business requirement to create a dynamic list of task approvers specified in a payload variable. The XPath expression can resolve to zero or more XML nodes. Each node value can be either of the following:

A single user, group, or application role

A delimited string of users, groups, or application roles. The default delimiter for the assignee delimited string is a comma (,).

3. Assign tasks with business rules

You can create the list of task participants with complex expressions. The result of using business rules is the same as using XPath expressions.

Reference (http://docs.oracle.com/cd/E14571\_01/integration.1111/e10224/bp\_introhwf.htm)

# **Question No: 19**

You are using Oracle jdeveloper 11g composite editor tool to built a composite application. Which service lime will you use to define your interfaces to the composite?

- A. Reference services lane.
- **B.** Exposed services lane.
- **C.** External services lane.
- **D.** Internal services lane.

#### **Answer: B**

# **Explanation:**

B. Exposed Services Lane

Left Swimlane (Exposed Services): The left swimlane is for services, such as a web services or JCA adapters, providing an entry point to the SOA composite application.

Reference (http://docs.oracle.com/cd/E15586\_01/integration.1111/e10224/fod\_intro2.htm)

#### **Question No: 20**

Which two statements are about Oracle SOA suit 11g BPEL component when using the entity? (Choose 2)

- **A.** Data operations such as loading and saving are performed automatically by the data provider service with out asking to code any service in vocation
- **B.** Data operation such as explicitly loading and saving data are performed by the data base adapter in Oracle BPEL process manager
- **C.** Data in variables is in service data object form. (SDO)
- **D.** Data in variable is in document object (DOM) form.

# Answer: A,C

# **Explanation:**

- A. Data operations such as loading and saving are performed automatically by the data provider service with out asking to code any service in vocation
- C. Data in variables is in service data object form. (SDO)

Data operations such as loading and saving data are performed automatically by the data provider service (the Oracle ADF Business Component application), without asking you to code any service invocation.

Data in variables is in SDO form, which provides for a simpler conversion process than DOM, especially when the data provider service understands SDO forms.

Reference (http://docs.oracle.com/cd/E14571\_01/integration.1111/e10224/bp\_manipdoc.htm)

#### **Question No: 21**

Choose three operations that are supported by Oracle file adapter?

- A. Read file.
- B. Fetch file.
- C. List files.
- **D.** Write file.
- E. Delete file.

# Answer: A,C,D

# **Explanation:**

Oracle File Adapter

- 1. Read File (inbound operation)
- 2. Write File (outbound operation)
- 3. Synchronous Read File (outbound operation)
- 4. List Files (outbound operation)

Reference (http://docs.oracle.com/cd/E23943\_01/integration.1111/e10231/adptr\_file.htm)

#### **Question No: 22**

Identify two features of event delivery network (EDN).

- **A.** Aligns SOA with event driven architecture (EDA).
- **B.** Supports a public subscribe declarative model.
- **C.** Facilitates services innovations and events to be mixed and matched.
- **D.** Provide the split join web services.

#### Answer: A,B

**Explanation:** A: sing the same concepts that are used in Web Service Definition Language (WSDL), EDN uses an XML-based Event Definition Language, which allows you to define the event and its associated, strongly typed data. This definition is then registered with the SOA Infrastructure and is available to all composites to publish or subscribe.

B: The Event Delivery Network (EDN) in Oracle SOA Suite 11g provides a declarative way to use a publish/subscribe model to generate and consume business events without worrying about the underlying message infrastructure.

Reference: Event Delivery Network with Oracle SOA Suite 11g R1

http://www.packtpub.com/article/event-delivery-network-oracle-soa-suite-11g-R1

# **Question No: 23**

Identify three major enablers of Oracle SOA 11g.

- **A.** Business process execution language.
- B. WSRP
- C. SCA
- D. WSDL
- E. Net
- F. OSGI

# Answer: A,C,D

# **Explanation:**

- A. Business process execution language.
- C. SCA
- D. WSDL

Reference (http://www.oracle.com/partners/en/knowledge-zone/middleware/oracleservice-oriented-architecture-soa/soa-exam-study-guide-308758.pdf)

#### **Question No: 24**

What do the Oracle business rules components inside? (Choose 2)

- A. Rules engine.
- B. Rule editor.
- **C.** Rule dictionary.
- **D.** Rules evaluation.
- E. Rules library

# Answer: A,C

# **Explanation:**

- A. Rules engine.
- C. Rule dictionary.

http://alloracletech.blogspot.se/2011/11/iz0-451-q-72.html

### **Question No: 25**

Which routing rule type in an Oracle mediator component externalizes routing logic to a Oracle rules dictionary?

- A. Dynamic.
- B. Static.
- C. Request.

#### **Answer: A**

# **Explanation:**

**Dynamic Routing Rules** 

Dynamic rules let you externalize the routing logic to an Oracle Rules Dictionary, which in turn enables dynamic modification of the routing logic.

Reference (http://docs.oracle.com/cd/E17904\_01/integration.1111/e10224/med\_createrr.htm)

# **Question No: 26**

By using technology, you enable to be more adaptable to change. It is easier to alter rules to meet the changing needs of the business, enabling the application to be more responsive to business requirements. This benefit of business rule can be defined as......

- **A.** Agility
- **B.** Transparency
- C. Availability

# **D.** Accessibility

# **Answer: A**

# **Question No: 27**

In Oracle SOA suit 11g embedded security is enabled via......

- **A.** Oracle service bus as a security gateway.
- **B.** Embedded OWSM agents to the SOA service infrastructure.
- **C.** Out-of-the box installation of the OWSM gateway.
- **D.** Custom installation of the OWSM gateway.

# **Answer: B**

# **Explanation:**

B. Embedded OWSM agents to the SOA service infrastructure.

Oracle Web Services Manager (OWSM): Provides infrastructure for Service

Oriented Architecture (SOA) and Web services security

OWSM Agent: Enforces SOA and Web services security

OWSM Policy Manager: Supports setting up policy configuration for SOA and Web

services security

#### Reference

(http://docs.oracle.com/cd/E15586 01/fusionapps.1111/e16689/F323386AN1463E.htm)

#### **Question No: 28**

Identify two applicable examples of business rules:

- **A.** Notifications to alert interested users about a change in the state of a task during the task life cycle.
- **B.** Business policies such as standing policies and approval matrices.
- **C.** Computations such as discounts or premiums.
- **D.** Activities that are required to advance the business process.

# Answer: B,C

# **Explanation:**

- B. Business policies such as spending policies and approval matrices
- C. Computations such as discounts or premiums

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Reference (http://www.oracle.com/partners/en/knowledge-zone/middleware/oracleservice-oriented-architecture-soa/soa-exam-study-guide-308758.pdf)

#### **Question No: 29**

Which two are BPEL faults?

- A. Business faults.
- **B.** Process faults.
- C. Runtime faults.
- **D.** Static faults.
- **E.** Dynamic faults.

# Answer: A,C

# Explanation:

12.3 Introduction to Categories of BPEL Faults

A BPEL fault has a fault name called a Qname (name qualified with a namespace) and a possible messageType. There are two categories of BPEL faults:

- 1. Business faults
- 2. Runtime faults

Reference (http://docs.oracle.com/cd/E23943\_01/dev.1111/e10224/bp\_faults.htm)

#### **Question No: 30**

Which two statements are true regarding developing SOA composite applications using Oracle jdeveloper?

- **A.** A service component can be created only using the SOA composite editor.
- **B.** A project development on the same SOA infrastructure must have a unique name across SOA composite application.

- **C.** When a service component is deleted using SOA composite editor, all references to all are automatically deleted.
- **D.** When you deleted a component, any WSDL imports used by that component are removed, even if the WSDL imports are used by other component.

# Answer: B,C

# **Explanation:**

BC

- B. A project development on the same SOA infrastructure must have a unique name across SOA composite application.
- C. When a service component is deleted using SOA composite editor, all references to all are automatically deleted.

A project deployed to the same infrastructure must have a unique name across SOA composite applications.

When a service component is deleted, all references pointing to it are invalidated and all wires are removed.

Reference (http://docs.oracle.com/cd/E15586\_01/integration.1111/e10224/fod\_intro2.htm)

# **Question No: 31**

You are implementing a BPEL process for your client. In the implementation scenario, the BPEL process sends a request to a service and waits until it receives a reply, or until a certain time limit is reached, which ever comes first. Which activity will be used to achieve this?

- A. Pick.
- B. Assign.
- C. Wait.
- D. While.

#### **Answer: A**

# **Explanation:**

A. Pick

**Pick Activity** 

This activity waits for the occurrence of one event in a set of events and performs the activity associated with that event. The occurrence of the events is often mutually exclusive (the process either receives an acceptance or rejection message, but not both). If more than one of the events occurs, then the selection of the activity to perform depends on