**MCQ**

**Chapter 11:**

[The correct answer for each question is indicated by a http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif]

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| **1** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhich of the following is true? | | | |
|  | | **A)** | A state is never transitory, it always lasts for an interval of time. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **A state is a condition during the life of an object or an interaction during which it satisfies some condition.** | | |
|  | | **C)** | An object always has more than one potential state. | | |
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| **2** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifThe transition from one state to another is triggered by an event. One type of trigger is a change trigger. Which of the following statements is true? | | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **A)** | **A change trigger occurs when a condition becomes true.** | | |
|  | | **B)** | A change trigger occurs when a condition changes. | | |
|  | | **C)** | A change trigger occurs when an attribute value changes in an object. | | |
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| **3** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhich of the following statements is true about state machines in general? | | | |
|  | | **A)** | A state machine must have a final pseudostate. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **A state machine must have at least one initial pseudostate.** | | |
|  | | **C)** | A state machine may have at most one initial and one final pseudostate. | | |
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| **4** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifA guard condition may be associated with a transition. Which of the following statements best applies to guard conditions? | | | |
|  | | **A)** | A guard condition may only involve attributes of the object that owns the state machine. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **A guard condition may involve attributes and links of the object that owns the state machine.** | | |
|  | | **C)** | A guard condition may only involve parameters from the triggering event. | | |
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| **5** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhich of the following statements is true about the triggers in a state machine? | | | |
|  | | **A)** | The trigger may correspond to any operation within the component that contains the class that owns the state machine. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **The trigger must correspond to an operation in the class that owns the state machine.** | | |
|  | | **C)** | The trigger must only correspond to operation without parameters in the class that owns the state machine. | | |
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| **6** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhich of the following statements is true about ‘run-to-completion’ semantics for actions in activity expressions on transitions in state machines? | | | |
|  | | **A)** | An action may be interrupted in its execution but it must be restarted so that it can ‘run-to-completion’. | | |
|  | | **B)** | When an action is interrupted then it should not ‘run-to-completion’. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **An action may not be interrupted once it has started executing.** | | |
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| **7** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhen an internal transition occurs within a state which of the following is true? The entry and exit actions, if present, are triggered. The entry and exit actions are not triggered. The entry and exit actions if present and the action tied to the internal transition are all triggered. | | | |
|  | | **A)** | The entry and exit actions, if present, are triggered. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **The entry and exit actions are not triggered.** | | |
|  | | **C)** | The entry and exit actions if present and the action tied to the internal transition are all triggered. | | |
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| **8** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifA state machine may have states that include substates. Which of the following is true? | | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **A)** | **An object may occupy multiple concurrent substates simultaneously.** | | |
|  | | **B)** | An object may occupy only two concurrent substates simultaneously. | | |
|  | | **C)** | An object may only occupy one substate at a time. | | |
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| **9** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifA state in a state machine may have concurrent nested submachines. Which of the following is true? | | | |
|  | | **A)** | Each of the concurrent nested submachines within a state must have the same number of states. | | |
|  | | **B)** | When the state changes in one concurrent nested submachine it must change in the other submachines in the same composite state. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **State transitions in concurrent nested submachines in the same composite state are independent of each other unless the enclosing state is exited (or entered).** | | |
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| **10** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifA state in a state machine may have concurrent nested submachines. Which of the following is true? | | | |
|  | | **A)** | The enclosing state may only exit when at least one of its submachines has reached its final state. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **The enclosing state may exit if triggered irrespective of the states of the submachines.** | | |
|  | | **C)** | The enclosing state may only exit when all of its submachines have reached their final state. | | |
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| **11** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhen an object exits a composite state which of the following is true. | | | |
|  | | **A)** | Each of the submachines in the composite state must enter their final state. | | |
|  | | **B)** | At least one of the submachines in the composite state must enter its final state. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **Whatever combination of substates the composite is in, all those substates are exited.** | | |
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| **12** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifA state machine may include junction and choice pseudostates. Which of the following statements is true? | | | |
|  | | **A)** | A static conditional branch has the same semantics as choice pseudostate. | | |
|  | | **B)** | Guard conditions on compound transition using junction pseudostates are evaluated at the junction pseudostate. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **Guard conditions on compound transition using choice pseudostates are evaluated at the choice pseudostate.** | | |
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| **13** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifThe difference between deep and shallow history pseudostates is best described by which of the following statements? | | | |
|  | | **A)** | A state machine may have more than one shallow history pseudostate. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **A shallow history pseudostate only remembers the active substates for the first level decomposition for a nested submachine.** | | |
|  | | **C)** | Deep history pseudostates are only used when there are concurrent nested submachines. | | |
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| **14** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifThe behavioural approach to constructing state machines involves which of the following? | | | |
|  | | **A)** | All interaction sequence diagrams should be analysed first. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **All interaction sequence diagrams involving classes that have heavy messaging should be analysed.** | | |
|  | | **C)** | One interaction sequence diagram for each class must be analysed. | | |
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| **15** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhen using the behavioural approach to develop a state machine interaction sequence diagrams are used. Which of the following statements is true? | | | |
|  | | **A)** | All message receive events on a sequence diagram correspond to triggers on a state machine. | | |
|  | | **B)** | All message send events on a sequence diagram correspond to actions in activity-expressions. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **State changes in a state machine should correspond to message receive events in sequence diagrams that contain the class that owns the state machine.** | | |
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| **16** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhen a state machine is checked for consistency with other models of the system which of the following is true? | | | |
|  | | **A)** | Every operation in a class must appear as a trigger on a state machine. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **Every action should correspond to the execution of an operation on the appropriate class.** | | |
|  | | **C)** | Every event must appear on a sequence diagram. | | |
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| **17** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifThere are two main kinds of state machine – protocol state machines and behavioural state machines. Which of the following best describes the differences between them? | | | |
|  | | **A)** | Protocol state machines cannot have composite states. | | |
|  | | **B)** | Protocol state machines may not have initial and final pseudostates. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **Protocol state machines may not have deep or shallow history pseudostates and do not have activity expressions.** | | |
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| **18** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifWhich of the following statements is true about states in a state machine? | | | |
|  | | **A)** | The state machine for some objects may have no states. | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **B)** | **The state machine for every object must have at least one state and an initial state.** | | |
|  | | **C)** | The state machine for every object must have at least one state, an initial state and a final state. | | |
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| **19** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifOn the following figure which symbol represents the final pseudostate in the state machine?  http://highered.mheducation.com/sites/dl/free/0077125363/315098/mcq11_05.gif**Mcq\_ch11\_q5** | | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **A)** | **Symbol 1** | | |
|  | | **B)** | Symbol 2 | | |
|  | | **C)** | Symbol 1 | | |
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| http://highered.mheducation.com/olcweb/styles/shared/spacer.gif | | | | | |
| **20** | | http://highered.mheducation.com/olcweb/styles/shared/spacer.gifOn the following figure which of the transitions has a relative time trigger?  http://highered.mheducation.com/sites/dl/free/0077125363/315098/mcq11_06.gif**Mcq\_ch11\_q6** | | | |
|  | | **A)** | Transition 1 | | |
|  | | **B)** | Transition 2 | | |
| http://highered.mheducation.com/olcweb/styles/v2_glencoe/images/correct.gif | | **C)** | **Transition 2** | | |
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