IT 101 - Introduction to Programming for I.T.
Midterm Exam #1 - Prof. Reed
Spring 2008

What is your name?: ___________________________(0 points)

There are two sections:
   I. True/False . . . . . . . . . . . . . . . . . . . . 20 points; (10 questions, 2 points each)
   II. Multiple Choice & Short Answer . . 40 points; (20 questions, 2 points each)
   III. Scenarios . . . . . . . . . . . . . . . . . . . . 40 points; (10 questions, 4 points each)

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100 points total

This test is worth 10% of your final grade. Circle your answers on this sheet. This test is open book and open notes. You have 50 minutes.

(Questions and other material on this test taken from password-protected teacher resources at aliceprogramming.net)

Select the best answer for each one and select the appropriate letter on your answer sheet. Be careful - more than one answer may seem to be correct. Some questions are tricky.

I. True/False:

T F 1. "If" statements are also referred to as Conditional Execution.
T F 2. An object in Alice has 5 degrees of orientation (up, down, back, left, right)
T F 3. In Alice, an object has 6 degrees of freedom:
T F 4. Alice is designed to prevent you from making a syntax error.
T F 5. In computing terminology, a textual storyboard is called pseudocode
T F 6. A sequential action block requires a Do Together method
T F 7. A green line in the Alice Editor Area indicated where the Do Together instruction will be dropped.
T F 8. Comments are instructions that cause some action to take place.
T F 9. Conditional execution (such as if/else statements and repetition) makes use of questions and expression to check a current condition in a world:
T F 10. A conditional expression is a question that will evaluate to either true or false

II. Multiple Choice & Short Answer:

11. An object is:
   a) A general word for something you can touch
   b) Anything that can be identified as unique from other things
   c) What an attorney says in court
   d) A means of moving a unique thing
   e) None of the above
12. Alice is written in
   a) Pascal
   b) C++
   c) English
   d) Java
   e) None of the above

13. In Alice, the Object Tree:
   a) Displays the world you are building
   b) Is used to assemble methods
   c) Contain a list of the objects in the current world, organized as a tree of object tiles.
   d) Is where coconuts are grown by the gorilla found in the Local Gallery.
   e) None of the above

14. In Alice, an instruction is:
   a) A program to be coded
   b) A storyboard to be rendered
   c) A scenario
   d) An action to be performed.
   e) None of the above

15. In the Circling Fish exercise from Ch. 2, the most effective way to circle the fish around the Island is to:
   a) Modify the goldfish turn left method to “as seen by” the palm tree
   b) Modify the goldfish turn left method to “as seen by” the island
   c) Modify the goldfish move forward method to “as seen by” the island
   d) Use the size of the island in four repeated sets of instructions moving forward, then right from the point of view of the goldfish
   e) None of the above

16. A program is a:
   a) Javascript for a theatrical play
   b) Set of implementations
   c) A list of instructions (actions) to accomplish a task.
   d) What you watch on TV
   e) None of the above

17. A method is a:
   a) A list of instructions (actions) to accomplish a task
   b) Five-step process: read, design, implement, de-bug, re-boot
   c) An action to be performed.
   d) Segment of program code that defines how to perform a specific task.
   e) None of the above
18. An example of a Control Statement in Alice is:
   a) Delete an event
   b) Camera orientation
   c) Do in order
   d) Do not do together
   e) None of the above

19. An example of an Argument required to execute the action (Method) “turn to face” would be:
   a) Snowman object
   b) A Do Nothing action
   c) World class
   d) Turn Face action
   e) None of the above

20. Nesting is the practice of:
   a) Grouping more than one method together
   b) Linking two objects together
   c) Constructing a for loop with a do-while loop
   d) Placing one program statement inside another
   e) None of the above

21. Comments are indicated by:
   a) //
   b) /
   c) ///
   d) /* */
   e) None of the above

22. A Control Structure, such as a Do in order or a Do together statement:
   a) is a statement that controls the execution of a block of instructions
   b) is a statement that executes to make objects perform a certain action
   c) is a math operation on numbers or other kinds of values
   d) is a function that checks a condition or compute a value
   e) None of the above

23. “snowman turn to face” is an example of a:
   a) loop
   b) expression
   c) instruction
   d) decision
   e) None of the above

24. 4(12*3) is an example of a:
   a) question
   b) loop
   c) decision
   d) expression
   e) None of the above
25. An example of properties of object Boy (placed in a world) would be:
   a) Hair and feet
   b) Height and width
   c) Left and right
   d) Stop and go
   e) None of the above

26. The value that the proximity question “mummy is within a given distance of an object” will return is a:
   a) Number
   b) Position
   c) Object
   d) Boolean
   e) None of the above

27. The value that the distance question “mummy distance in meters to another object is within a given distance of an object” will return is a:
   a) Number
   b) Position
   c) Object
   d) Boolean
   e) None of the above

28. The four common math operators that Alice, and all programming languages use to evaluate math expressions are:
   a) Add, subtract, exponent, divide
   b) Divide, multiply, subtract, slope
   c) Add, subtract, divide, parenthetical expression
   d) Add, multiply, subtract, divide
   e) None of the above

29. “If it is later than 4:50 pm, class is over”, is an example of a:
   a) condition
   b) decision
   c) loop
   d) method
   e) None of the above

30. When one if statement is written inside another if statement, we say the if statements are:
   a) Sequenced
   b) Nested
   c) Conditioned
   d) Overkill
   e) None of the above
1. Given the initial scene shown below, where Alice is facing the tree, one meter from it. From Alice's point of view, she can see a yellow flower to the left side of the tree and a red flower on the right side of the tree. Each flower is one meter away from the tree. What is the result of running the following block of code?

- a) Alice is near the tree facing the red flower
- b) Alice is near the tree facing the yellow flower
- c) Alice is near the tree and facing the tree
- d) Alice does not move, instead turning to the right .25 revolutions
- e) Alice is near the yellow flower and facing the tree

2. Consider the same initial scene as in question #1. What would be the result of running the following piece of code?

- a) Alice is near the tree facing the yellow flower
- b) Alice is near the tree facing the red flower
- c) Alice is near the yellow flower facing the tree
- d) Alice is near the yellow flower facing away from the tree
- e) Alice is near the red flower facing away from the tree

3. What does it mean to say that the “cat's vehicle is the horse”?

- a) If the cat moves, so does the horse
- b) Clicking on the cat makes the horse move
- c) If the horse moves, so does the cat.
- d) Clicking on the horse makes the cat move
- e) None of the above
4. Consider the following scene, code and patterns. Which pattern is traced on the ice by the ice skater when the code is run?

a) $\infty$

b) $\Delta$

c) $\square$

d) $\bigcirc$

e) None of the above – the skater turns around in place
5. Given the following scene, code for the *World.closer* function, and a call to the function. The Eskimo is standing between a kayak and a penguin. What value would be returned when the call to the function is executed?

   a) none  
   b) true  
   c) false

6. Using the same initial scene as shown in question #5, what would the expression shown below evaluate to?

   a) true  
   b) false  
   c) Alice would throw an exception  
   d) Unclear – it depends on the order of evaluation
7. Consider the code shown below. How many meters does the snowman move forward when this code is run?

a) 2  
b) 5  
c) 7  
d) 10  
e) none of these

8. Consider the following scene and code. The Samurai is approximately 14 meters away from the ball and is facing it. What would happen when the code is run?

a) The Samurai ends up 14 meters past the ball.  
b) The Samurai ends up at the ball, in approximately 7 seconds  
c) The Samurai ends up at the ball, in approximately 13 seconds  
d) The Samurai ends up 6 meters in front of the ball, having traveled $\frac{1}{2}$ the distance to the ball.  
e) The Samurai ends up 1 meter away from the ball.