

Information and Computer Science Department

King Fahd University of Petroleum and Minerals

College of Computer Sciences and Engineering

Information and Computer Science Department

Second Semester (082)

ICS 201 - Introduction to Computing II

Final Exam

Sunday, 21st June, 2009

Time: 120 minutes

Name:

ID#:

Please circle your section number below:

Section	01	02	03	04
Instructor	Alvi	Sukairi	Sukairi	Yahyaoui
Day and Time	SMW 9 - 9:50	SMW 9 -9:50	SMW 8 - 8:50	SMW 11 - 11:50

Question #	Maximum Mark	Obtained Mark
1	20	
2	10	
3	20	
4	20	
5	30	
Total	100	

Q. 1: True/False Questions about Concepts**[20 Points]****Write your answer in the provided space:**

#	Statement	Ans
1	The method returned type can not be changed when overriding a method.	
2	The access permission of an overridden method can be changed from private in the base class to public.	
3	An abstract method can be private.	
4	When a method is overloaded, the new method definition given in the derived class should have the exact same number and types of parameters as in the base class.	
5	Instance variables or methods having package access can be accessed <i>by name</i> from outside the package.	
6	If a class B is derived from class A , and class A has a protected instance variable n , but the classes A and B are in <i>different</i> packages then if a method in class B creates an object of class A , it can not access n by name.	
7	If the method definition is associated with its invocation when the code is compiled, that is called early binding.	
8	In the case of private and final methods, late binding would serve no purpose.	
9	<i>Upcasting</i> is when an object of a base class is assigned to a variable of a derived class.	
10	Checked exceptions must follow the Catch or Declare Rule.	

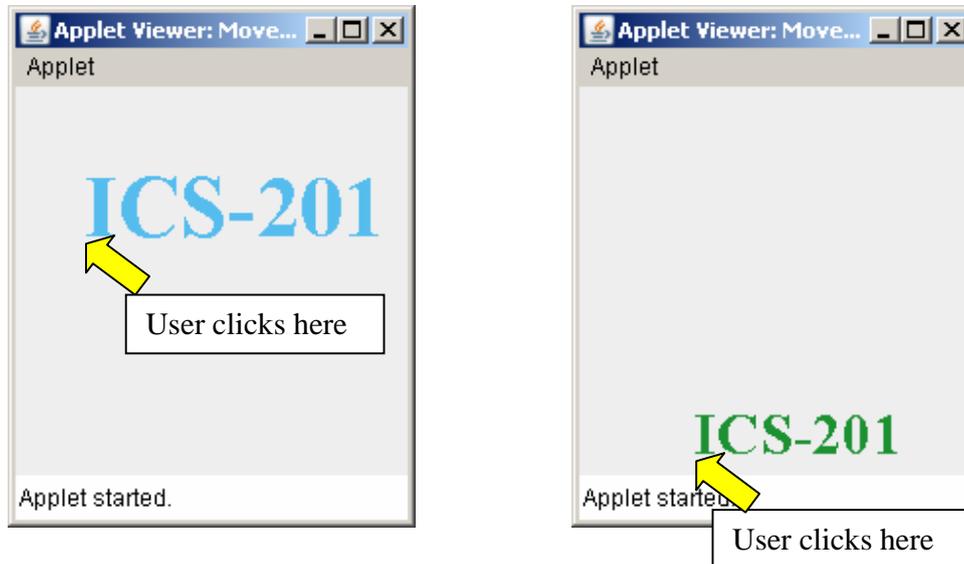
Q. 2: [4+3+3 = 10 points]

1. Mention one advantage and one disadvantage for each of raster graphics and vector graphics.

2. What is the difference between scaling matrices for uniform and non-uniform scaling?

3. Mention the main tasks needed to represent 3D graphics in 2D world. Explain them.

Q. 3: [15 + 5 = 20 points] Consider the following Java Applet:



(a) [15 points] Write the Java program **MoveText.java** for the above applet.

Description of the program:

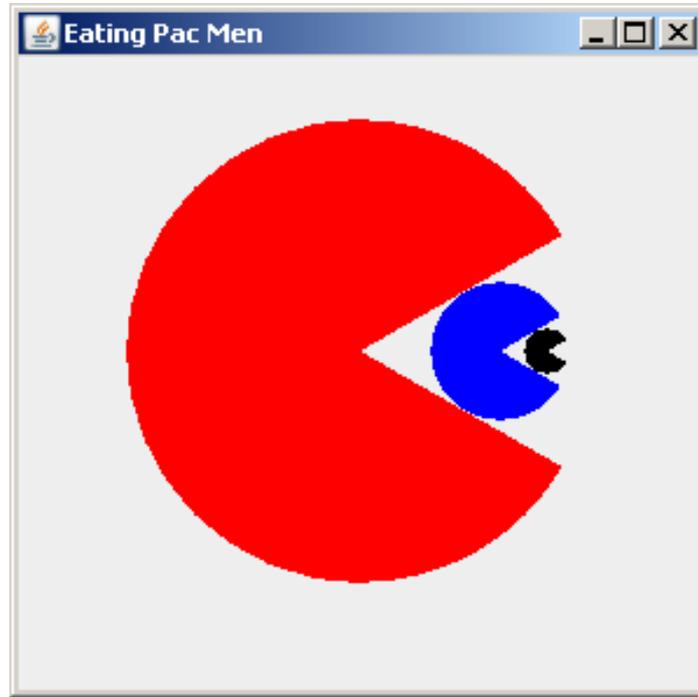
Whenever the user clicks inside the frame of the applet, the string “ICS-201” gets printed

- In random colors,
- In Times New Roman font with random size ranging from 10-50.
- At the location of the mouse click.

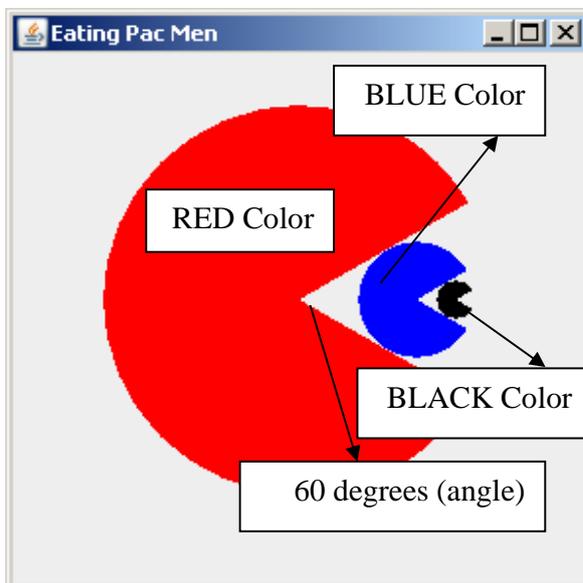
Do not draw the arrow and the text “User clicks here”. They are only shown for explanation.

(b) [5 points] Write an HTML file for running the applet. Name your applet as **MoveText.java**. Take the width and height to be 200 each.

Q. 4: [20 points] Write a Java program that creates the following figure:



The size of the window is 300 x 300. The “mouth” of the pacman is open by 60 degrees.



Whenever the user clicks the close-window button, the following message appears.

“Security Exception: The program will be closed now” as follows:



On clicking the “Ok” Button, the program exits.

Q. 5: [30 points] Create a class named **TimerAlarm** that extends **Thread**. This class should implement a timer without using the built-in **Timer** class. Define an interface named **Playable** that defines a void method named **alarmAction()**. Your **TimerAlarm** class constructor should take two parameters: an integer named **t** representing time in milliseconds and an object named **obj** of type **Playable**. Every **t** milliseconds the **TimerAlarm** class should invoke method **obj.alarmAction()**. Also add **pause()** and **play()** methods that disable and enable the invocation of **alarmAction()**. Test your class with code that increments and prints out a counter.

