

**CT2: CSE 203 - Object-Oriented Programming I: Java****Time: 30 min****Mark: 20****Name:****ID:****Question 1:****[10]**

Define a class and name it as **"Monkey"**. Add the following inside the class.

- a) Define instance variables ***breed***, ***weight***, ***height*** and a static variable ***animalClass*** whose value should be set to ***"Vertebrates"***
- b) Add a parameterized **constructor** which will take parameters for all 3 instance variables and initializes the respective attributes with the parameters passed to the constructor.
- c) Add the following methods.
  - i. ***public void eat(float foodWeight)***  
– Inside the method, increase the ***weight*** by ***foodWeight*** amount. Here ***weight*** is the instance variables whereas ***foodWeight*** is the value of the parameters passed to the method.
  - ii. ***public void grow()***  
– inside the method, increase the ***height*** attribute by 0.1 amount.
  - iii. ***public void display()***  
– Print all 3 attributes and the static variable.

**Question 2:****[10]**

Define a class and name it as **"Forest"**. Define the **main** method inside the class. Inside the main, do the following.

- a) Create an object of **Monkey** class and pass ***breed***="Pigmy", ***weight***=0.25, and ***height***=.5. Store the reference to a variable name ***monkey1***.
- b) Create an object of **Monkey** class and pass ***breed***="Mandrill", ***weight***=0.25, and ***height***=.45. Store the reference to a variable name ***monkey2***.
- c) Call the ***eat(...)*** method using the ***monkey1*** variable and pass ***foodWeight = 0.1***
- d) Set the ***animalClass*** to ***"Spinal"*** using the class.
- e) Call the ***grow()*** method using the ***monkey2*** object.
- f) Call the ***display(...)*** method for both ***monkey1*** and ***monkey2***.
  - What is the output of these method calls?

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Question 1: [12]

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Define a class and name it as “**ClassTest**”. Add the following inside the class.

- a) Define instance variables **name**, **score**, **noOfQuestions**, **maxScore**
- b) Add a parameterized **constructor** which will take parameters for all attributes and initializes the respective attributes with the parameters passed to the constructor.
- c) Add the following methods.
  - i. `public void addQuestion(int mark)`
    - Inside the method, increase the **noOfQuestions** by 1 and **score** by **mark** amount. If **score** become greater than **maxScore**, reset the value of **noOfQuestions** and **score** to their earlier values. Here **noOfQuestions** and **score** are the instance variables whereas **mark** is the parameters passed to the method.
  - ii. `public int getQuestionCount()`
    - the method should return the **noOfQuestions** attribute.
  - iii. `public void display()`
    - inside the method, print the value of all attributes.

Question 2: [8]

Define a class and name it as “**Course**”. Define the **main** method inside the class. Inside the main, do the following.

- a) Create an object of **ClassTest** class and pass **name**=your first name, **score**=17, **noOfQuestions**=3, and **maxScore**=20. Store the reference to a variable name **ct1**.
- b) Create another object of **ClassTest** class and pass **name**=your last name, **score**=10 and **noOfQuestions**=4, and **maxScore**=20. Store the reference to a variable name **ct2**.
- c) Call the **addQuestion(...)** method using the **ct1** variable and pass **mark** = **3 + id%13** where **id** is the last 2 digits of your registration number.
- d) Call the **display()** method using **ct1** and **ct2** variables
  - What is the output of these calls?