Seneca ​ College​

ofCHOOL​ ​Applied ​OF ​​COMPUTER ​ Arts​​ &​​ ​STUDIES ​​Technology

S ​

​ **Sample**​​ **JAC444**​​ **Midterm**​​ **Test**​​ **1**​​ **-**​​ **2015**​

**A.**​​**Theory**​(2​ ​marks)

What ​ are​ ​ the​ ​ differences​ ​ between​ ​this ​ and​ ​this() ​ ?​

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**B.**​​**Code**​​**–**​​**Understanding**​ ​12​ ​marks​ ​=​ ​3​ ​questions​ ​\*​ ​4​ ​marks

1. Read​ ​the​ ​following​ ​Java​ ​program. ​​Does​ ​it​ ​compile?​ ​If ​it​​ ​does​ ​not,​ ​explain​ ​what​ ​the​ ​errors​ ​are. If​ ​the​ ​code​ ​compiles,​ ​write​ ​the​ ​output

class​ ​Value​ ​{

public ​​int​ ​i​ ​=​ ​2;

}

public ​ class​ ​ MyInteger​ ​ ​{

public​ ​static​ ​void​ ​main(String​ argv[])​ ​ {​ MyInteger​ ​mine​ ​=​ ​new​ ​MyInteger();

mine.up();

}

public​ ​void​ ​up() ​ {​

int ​ i​ ​ =​ ​ 4​ ;

Value ​ v​ ​ =​ ​ new​ ​ Value();​ v.i​ ​=​ ​9; down(v,​ ​i);

System.out.print("​ ​"​ ​+​ v.i);​

}

public​ ​void ​ down(Value​ ​ v,​ ​ int​ ​ i)​ ​ {​

i​ ​=​ ​3;

v.i​ ​=​ ​5;

Value​ ​val​ ​=​ ​new ​​Value();

v​ =​​ ​val;

System.out.print(i​ ​+​ "​​ ​" ​ +​​ ​v.i); }

}

**The**​​**Java**​​**program**​​**does**​​**not**​​**compile**​​**–**​​**Errors:**

# \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Output**​:

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

2. Read​ ​the​ ​following​ ​Java ​ program.​ ​ ​Does ​it​​ ​compile? ​ If​ ​ it​​ does​ ​ not,​ ​ explain​ ​ what​ ​​the​ ​errors​ ​are. If​ ​the​ ​code​ ​compiles,​ ​write​ ​the​ ​output

interface​ ​Second<T> ​ {​

​ ​public​ ​void​ ​m(T​ ​t);

}

public​ ​class​ ​When​ ​{

​ ​public​ ​static​ ​void​ main(String[]​ ​ ​args)​ ​{ final ​ int​ ​ i​ ​ =​ ​ 5​ ;

Second<String>​ ​second​ ​=​ ​s​ ->​​ ​System.out.println('y'​ ​-​ ​'x'​ ​+​ ​s​ ​+​ ​i); second.m("X");

​ ​}

}

**The**​​**Java**​​**program**​​**does**​​**not**​​**compile**​​**–**​​**Errors:**

# \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Output**​:

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

3. Read​ ​the​ ​following​ ​Java​ ​program. ​ Does​ ​ it​ ​ compile?​ ​​If ​ ​it ​​does ​​not,​ ​explain​ ​what​ ​the​ ​errors ​​are. If​ ​the​ ​code​ ​compiles,​ ​write​ ​the​ ​output

abstract​ ​class ​ Fruit​ ​ {​ abstract​ ​public​ ​void​ ​name(); public​ ​float ​ price()​ ​ {​ return​ ​0.0;

}

}

public​ ​class​ Apple​ ​ extends​ ​ Fruit​ ​ {​ public​ ​static​ ​void​ ​main(String​ ​argv[])​ ​{

Apple​ ​e​ ​=​ ​new​ ​Apple();

e.name();

}

public​ ​void​ ​name()​ ​{

System.out.println("Honeycrips");

}

public​ ​float​ ​price()​ {​ return​ ​10.0f;

}

**}**

**The**​​**Java**​​**program**​​**does**​​**not**​​**compile**​​**–**​​**Errors:**

# \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Output**​:

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**C.** ​ **Code**​​ **–**​​ **Development**​​ (6 ​ marks)​

Create ​ an​ ​ interface​ ​Drivable ​ that​ ​ defines​ ​ ​a ​ method​​ called​ ​drive ​ that​ ​ takes​ ​ an​ ​ argument​ ​ of​ ​ ​type ​String and ​​returns​ ​a​ Boolean​.​ ​Create ​ ​an ​ interface​ ​Valuable ​ that​ ​ inherits​ ​ from​ ​Drivable ​ and​ ​ defines​ ​ a​ ​ method​ called​ ***price***​​ ​that​ ​takes​ ​an​ ​argument​ ​of​ ​type​ String​​and​ ​returns​ ​a​ Double​***.***

Create​ ​a​ ​class​ Car​ ​that​ ​defines ​ a​ ​ car​ ​object.​ ​ The​ ​Car​​ class ​ must​ ​ have​ ​ fields​​ such​ ​ as​ ​ brand,​ ​ price,​​ and​​ onGas​ a​ ​Boolean​ ​value​ ​set​ ​to​ ​true​ ​if​ ​a​ ​car​ ​runs​ ​on​ ​gas.​ ​The​ Car​ ​class​ ​must​ ​implement​ ​the​ Valuable ​ interface.​ ​ The​ drive​ ​method​ ​takes​ ​the​ ​argument ​ the​ ​​car’s​ ​brand ​ and​ ​ returns​ ​ ​true​ ​if​ ​the ​ car​ ​ runs​ ​ on​ ​ gas,​ ​ otherwise​ ​ returns​ false.​ ​The​ ​method​ price​ ​takes​ ​as​ ​argument​ ​the​ ​car’s​ ​brand​ ​and​ ​returns​ ​its​ ​price​ if​ ​ the​ ​ car​ ​ runs​ ​ on​ ​ gas,​ otherwise​ ​throw ​ an​ ​ exception.​ ​ You​ ​have​​ ​to​ ​define​ ​that​ exception.​​ Besides,​​ ​you​ ​have ​ to​ ​ ​implement ​ in​​ ​your class​ ​methods​ ​such​ ​as​ toString​,​ hashCode​,​ equals​​inherited​ ​from​ Object​ ​class.

*Comment*​​*your*​​*code*​​*and*​​*follow*​​*Java*​​*coding*​​*conventions.*​​*Write*​​*setter*​​*and*​​*getter*​​*only*​​*for*​​*one*​​*field*​​*(for*​​*instance*​***title***​*)*

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**