**JAVA PROGRAMMING ASSIGNMENTS**

Q1. Create a class called **“SavingsAccount”** having the following

member:-

(a) **amount** (double):- which stores amount of every customer

(b**) name** (String):- which stores name of customer

(c) **custid** (int):- which should be generated by bank and allotted to a

customer (Use your own logic to implement this concept)

(d) **rate** (double):- which stores the annual interest rate offered by

bank. It must be initialized to 6

(e) **total (**double):- witch stores the sum total of the amount of all

customers

Provide following methods:-

(a). A parametrized constructor for initializing the customer name and

amount deposited by him. It should also have provision for initializing

“custid” and handling “total”.

(b). “**calculateInterest ( )**” which should calculate monthly interest

and add it to the amount deposited by the customer

(c). “**display ( )**” which should print details about a customer

(d). A parametrized method called “**changeRate ( )**” which should

accept an argument and reset the variable “rate”.

(e) “**showBankDetails( )**” which should display the details of the

bank. The information displayed should be:

No of customers, rate of interest offered by bank and total liquidity of

thebank

Finally design a class called “**TestSavingAccount**” containing the

method “**main( )**”. In this method create an array of “n” object of

“**SavingsAccount**” class, where “n” is given by the user. Fill up the

detail of each customer by accepting data from the user. Mark

arrangement to display their original amount as well as the amount

after interest is added Also show the details of the bank at the end.

Q.2 Write a program which accepts nos using command-line

arguments, stores them in an array and then displays the largest

element of the array along with it’s position. Assume that user will

supply unique nos only and make sure the original order of elements

in the array is not altered.

Q.3 Write a “**Payroll**” class that has following arrays as it’s

members:

(a) **empid**:- an array of 7 integers to hold employee id’s. It should be

initialized with the following numbers:

5658845, 4520125, 7895122, 8777541, 8451277, 1302850, 7580489

(b). **Hours**:- An array of seven integers to hold no of hours worked by

each employee.

(c). **Payrate**:- An array of 7 doubles to hold each employee’s hourly

rate

(d). **Wages**:- An array of 7 doubles to hold each employee’s gross

wages.

The class should relate data in each array through subscripts.

For example, the number in element 0 of “hours” array should be the

no of hours worked by the employee whose id is stored in element 0

of the “**empid**”. That same employee’s rate should be stored in

element 0 of the “**payrate**” array.

In addition to the appropriate accessor and mutator methods the

class should have a method that accepts an employee id as an

argument and returns the gross pay for that employee.

Demonstrate the class in a complete program that displays each

employee number and asks the user to enter that employee’s hours

and pay rate. If should then display each employee’s id and gross

wages.

Input validation:- Don’t accept negative value for hours and numbers

less than 6.00 for pay rate.

Q.4 create a class called “**Rectangle**” with two members “length” and

“breadth” and an appropriate paramerized constructor for initializing

them.

Also provide a method which returns the area of rectangle

Now create a sub-class of “**Rectangle**” called “**Cube**” which

adds a member called “**height**” Also provide following methods.

An appropriate constructor for initializing length, breadth and height.

A method called “**area( )**” to return the surface area.

[Formula :- 2 (1b+bh+h1)]

A method called “**volume( )**” to return the volume of the cube.

Finally create a calls called “**CreateFigure**” containing “**main( )**”

which should create an object of class “**Cube**” and in a user

interactive manner should initialize and display values.

Q5. Create a class called “**Employee**” having two data members:

**Name** (String):- which stores the name of an employee

**Age** (int):- which stores the age of an employee

Also provide following methods in the class

A parameterized constructor for initializing name and age

A method called “**show( )**” which displays age and name

A method called “**earnings( )**” which should return the earning of the

employee.

Create a sub-class of “**Employee**” called “**HourlyEmployee**” which

adds2 more variables “**wages**” and “**hours**” each of type double. It

should have following methods.

A parameterized constructor which should initialize wages and hours

as well as age and name.

An method called “**show( )**” which should display wages and hours

alongwith age and name.

A method called “**earnings( )**” which should calculate and return

earnings of an employee using following logic.

If hours < = 40 then

Earnings = wage \*hours

else

Earnings = 40\*wage + wage \*1.5 (hours-40)

A gain create another sub-class of “**Employee**” called

“**CommissionedEmployee**” which adds 2data members called

“**commissionRate**” and “**grossSales**” both of type double. It should

have following

A parametrized constructor which should initialize

“**commissionRate**” and “**grossSales”** as well as “**age**” and “**name**”

A method called “**show( )**” which should display “**commissionrate**”

and “**grossSales**” alsong with “**age**” and “**name**”

A method called “**earning ( )**” which should calculate earning by

multiplying “**commissionRate**” with “**grossSales**” and returns it.

Finally create a class called “**CreateEmployees**” containing the

method “**main( )**”. This method should create 2 objects one each of

“**HourlyEmployee**” and “**CommissionEmployee**” and using

“dynamic method dispatch” should display their details as well as

their earnings. Also the total amount spent by the company on the

earning of it’s employees (hourly and commissioned both) should be

displayed at the end