Savitribai Phule Pune University
T.Y.B.Sc. (Computer Science) Practical Examination, March / October
(2013 Pattern)
CS – 348 Lab Course – II Programing in Java – I, Programing in Java – II & Computer Graphics

Duration : 3 Hours **Maximum Marks : 80**

1. Create an abstract class shape. Derive three classes sphere, cone and cylinder from it. Calculate area and volume of all (use method overriding) [30]

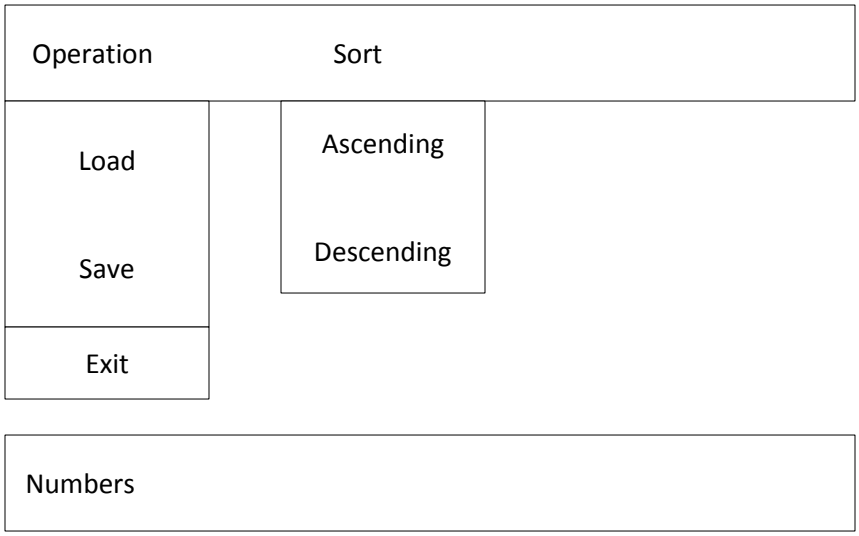
2. Design an HTML page containing 4 option buttons (Painting, Drawing, Singing and swimming) and 2 buttons reset and submit. When the user clicks submit, the server responds by adding a cookie containing the selected hobby and sends a message back to the client. Program should not allow duplicate cookies to be written. [30]

3. Viva (Java)	External	[5]
4. Demo of Mini project using Computer Graphics (Activity) On college machine using Linux in OpenGL	External	[5]
5. Lab Book (Semester I and II)	Internal	[10]

Savitribai Phule Pune University
T.Y.B.Sc. (Computer Science) Practical Examination, March / October
(2013 Pattern)
CS – 348 Lab Course – II Programing in Java – I, Programing in Java – II & Computer Graphics

Duration : 3 Hours **Maximum Marks : 80**

1. Write a menu driven program to the following operations on a set of integers as shown in the following figure. The load operation should generate 10 random integers (2 digits) and display the numbers on the screen. The save operation should save the numbers to a file "numbers.txt". The Sort menu provides various operations and the result is displayed on the screen. [30]



2. Write a client-server program which displays the server machine's date and time on the client machine [30]
3. Viva (Java) External [5]
4. Demo of Mini project using Computer Graphics (Activity) On college machine using Linux in OpenGL External [5]
5. Lab Book (Semester I and II) Internal [10]

Savitribai Phule Pune University
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Duration : 3 Hours **Maximum Marks : 80**

1. Define a class MyData (Day, Month, year) with methods to accept and display a MyData object Accept data as dd, mm, yyyy. Throw user defined execution "InvalidDateException" if the data is invalid.
   Example of invalid dates:
   a. 12 15 2015
   b. 31 6 1990
   c. 29 2 2015 [30]
2. Consider the following entities and their relationships
   BillMaster(billno, custname, billdate)
   BillDetails(itemname, qty, rate)
   BillMaster and BillDetails are related with one-to-many relationship. Create a _____ 3NF using Postgresql for the above and solve the following

   Design HTML page that accept the bill number from user and print the corresponding bill in the following format using servlet programming.

   Bill No: Bill Date
   Customer Name:

Sr. NO.	Item Name	Quantity	Rate	Total
Net Bill				

3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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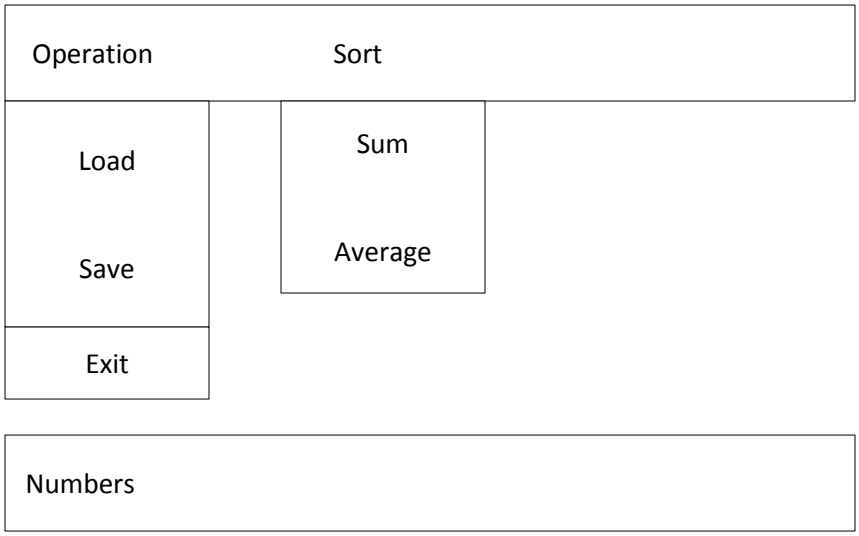
Duration : 3 Hours **Maximum Marks : 80**

1. Write a menu driven program to the following operations on a set of integers as shown in the following figure. The load operation should generate 10 random integers (2 digits) and display the numbers on the screen. The save operation should save the numbers to a file "numbers.txt". The Sort menu provides various operations and the result is displayed on the screen. [30]



2. Design a servlet that provides information about a HTTP request from a client, such as IP address and browser type. The servlet also provides information about the server on which the servlet is running, such as the operating system type, and the names of currently loaded servlet. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Define a class SavingAccount (acno, name, balance). Define appropriate constructors and operations withdraw(), deposit(), and viewbalance(). The minimum balance must be 500. Create an object and perform operations. Raise user defined "InsufficientFundsException" when balance is not sufficient for withdraw operation. [30]
2. Define a thread to move numbers inside a panel vertically. The numbers should be created between 0 – 9 when user clicks on the Start Button. Each number should have a different color and vertical position (calculated randomly). Note: suppose user has clicked Start button 5 times then five numbers say 0, 1, 5, 9, 3 should be created and move inside the panel. Choice of number between 0 – 9 is random. Ensure that number is moving within the panel border only. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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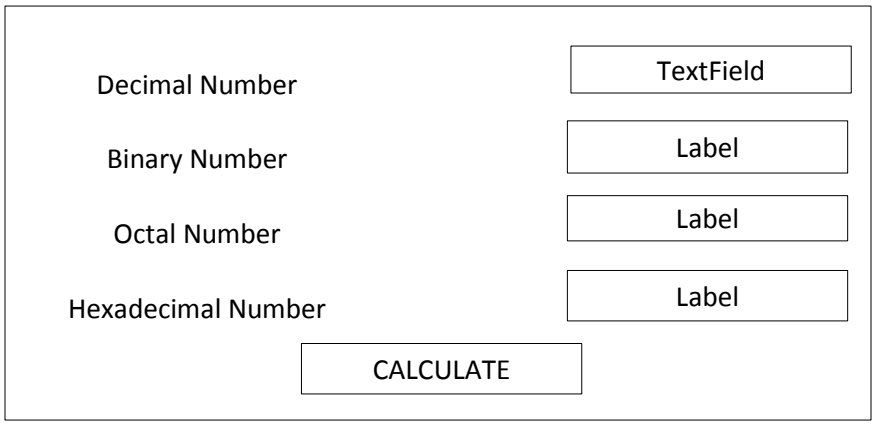
Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to accept a decimal number in the TextField. After clicking Calculate button, program should display the binary, octal, hexadecimal equivalent for the entered decimal number. [30]



2. Writ a server program which echoes message sent by the client. The process continues till the client types "END"
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Create a package named Series having two different classes to print the following series:
   a) Prime numbers
   b) Squares of numbers

   Write a program to generate 'n' terms of above series. [30]
2. Create a table Student with the fields roll number, name, percentage using Postgresql. Write a menu driven program (Command line interface) to perform the following operations on student table. [30]
   a) Insert
   b) Modify
   c) Delete
   d) Search
   e) View All
   f) Exit
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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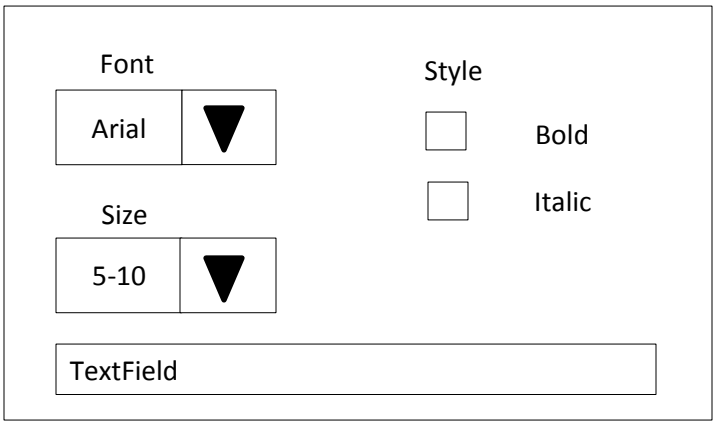
Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to create the following GUI and apply the changes to the text in the TextField. [30]



2. Design a servlet which counts how many times a user has visited a web page. If the user is visiting the page for the first time then display a message "Welcome". If the user is revisiting the page, then display the number of times page is visited (Use Cookies) [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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CS – 348 Lab Course – II Programing in Java – I, Programing in Java – II & Computer Graphics

Duration : 3 Hours **Maximum Marks : 80**

1. Create an Applet which displays a message in the center of the screen. The message indicates the events taking place on the applet window. Handle events like mouse click, mouse moves, mouse dragged, mouse pressed. The message should update each time an event occurs. The message should give details of the event such as which mouse button was pressed (Hint: Use repaint(), MouseListener, MouseMotionListener) [30]

2. Write a program which sends the name of a text file from the client to server and displays the contents of the file on the client machine. If the file does not exists display proper error message.
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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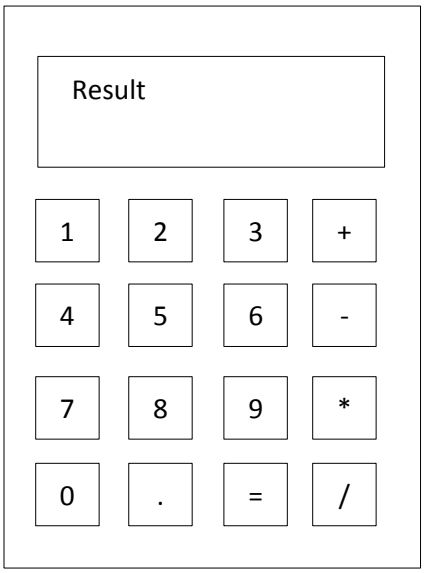
Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to implement a simple arithmetic calculator. Perform appropriate validations. [30]



2. Write a program to accept a list of file names on the client machine and check how many exist on the server. Display appropriate messages on the client side. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to accept a string as command line argument and check whether it is a file or directory. Also perform operations as follows:
   a) If it is a directory, list the names of text file. Also, display a count showing the number of files in the directory.
   b) If it is a file display various details of that file. [30]
2. Define thread called "PrintTextThread" for printing text on command prompt for 'n' number of times. Create three threads and run them. pass the text and 'n' as parameters to the thread constructor. [30]
   Example:
   a) First thread prints "I am in FY" 10 times
   b) Second thread prints "I am in SY" 20 times
   c) Third thread prints "I am in TY" 30 times
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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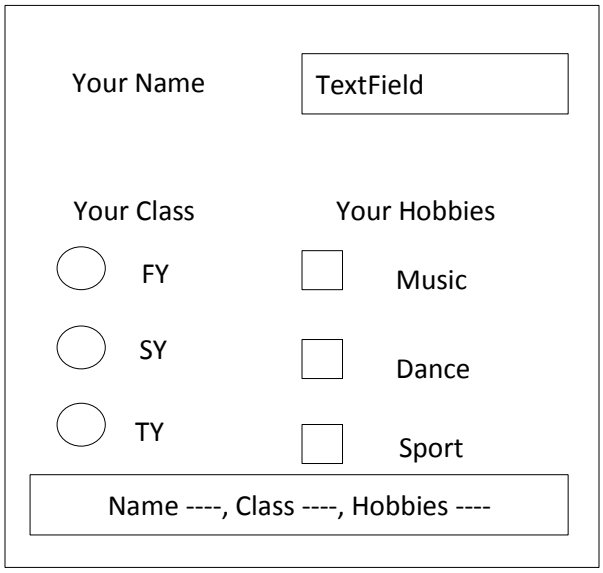
Duration : 3 Hours **Maximum Marks : 80**

1. Create the following GUI screen using appropriate layout manager. Accept the name, class, hobbies from the user and display the selected options in a text box. [30]



2. Write a program to calculate the sum and average of an array of 1000 integers (generated randomly) using 10 threads. Each thread calculates the sum of 100 integers. Use these values to calculate average. [Use join method]. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to accept a string as command line argument and check whether it is file or directory. Also perform operations as follows: [30]
   a) If it is a directory, delete all text file in that directory. Confirm delete operation from user before deleting text file. Also, display a count showing the number of files deleted, if any, from the directory.
   b) If it is a file display various details of that file.
2. Create a table student with fields roll number, name, percentage using Postgresql. Insert values in the table. Display all the details of the student table in a tabular format on the screen. (Using Swing) [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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Duration : 3 Hours **Maximum Marks : 80**

1. Write a menu driven program to perform the following operations on a text file "phone.txt" which contains name and phone number pairs. The menu should have options:
   a) Search name and display phone number
   b) Add new name-phone number pair. [30]
2. Construct a linked list containing names of colors: red, blue, yellow and orange. Then extend your program to do the following:
   i. Display the contents of the List using an Iterator;
   ii. Display the contents of the List in reverse order using a ListIterator
   iii. Create another list containing pink and green. Insert the elements of this list between blue and yellow.
3. Viva (Java) (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to read item information (id, name, price, qty) from the file "item.dat". write a menu driven program to perform the following operations using Random access file: [30]
   a) Search for a specific item by name
   b) Find costliest item
   c) Display all items and total cost
2. Create a Hash table containing student name and percentage. Display the details of the hash table. Also search for a specific student and display percentage of that student. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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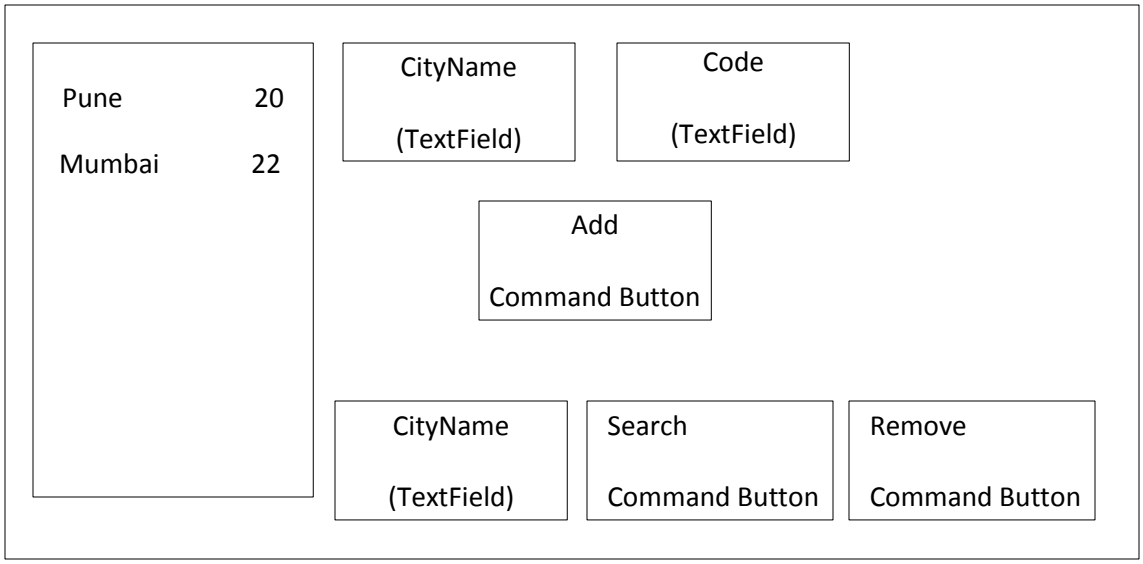
Duration : 3 Hours **Maximum Marks : 80**

1. Define a class CricketPlayer(name, no_of_innings, no_of_times_notout, total_runs, bat_avg). Create an array of "n" player objects. Calculate the batting average for each player using a static method avg(). Handle appropriate exception while calculating average. Define static method "sortPlayer" which sort the array on the basis of average. Display the player details in sorted order. [30]
2. Create an application to store city names and their STD codes using an appropriate collection. The GUI should allow the following operations: [30]
   a) Add a new city and its code (No Duplicates)
   b) Remove a city from the collection
   c) Search for a city name and display the code.



3. Viva (Java) (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Define an abstract class "Staff" with members name and address. Define two sub-class of this class – "FullTimeStaff" (department, salary) and partTimeStaff(number_of_hours, rate_per_hour). Define appropriate constructors. Create "n" objects which could be of either FullTimeStaff or PartTimeStaff class by asking the user's choice Display details of all "FullTimeStaff" objects and all "PartTimeStaff" objects. [30]
2. Design the table Login(login_name, password) using Postgresql. Also design an HTML login screen accepting the login name and password from the user. Write a servlet program that validates accepted login name and password entered by user from the login table you have created. The servlet sends back an appropriate response. [30]
3. Viva (Java) (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Define a class MyNumber having one private integer data member. Write a default constructor to initialize it to 0 and another constructor to initialize it to a value (use this). Write methods isNegative, isPositive, isZero, isOdd, isEven. Create an object in main. Use command line arguments to pass a value to the object and perform the above tests. [30]
2. Define a thread to move alphabets inside a panel vertically. The alphabets should be created between A – Z when user clicks on the Start Button. Each alphabets should have a different color and vertical position (calculated randomly). Note: Suppose user has clicked buttons 5 times then five alphabets say A, E, C, G, J should be created and move inside the panel. Choice of alphabets between A-Z is random. Ensure that alphabet moving within the panel border only. [30]
3. Viva (Java) (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Create an Applet which displays a message in the center of the screen. The message indicates the event taking place on the applet window. Handle various keyboard related events. The message should update each time an event occurs. The message should give details of the event such as which key was pressed, related, typed etc. (Hint: Use repaint(), KeyListener). [30]
2. Accept "n" integers from the user and store them in a collection. Display them in the sorted order. The collection should not accept duplicate elements (Use suitable collection). Search for a particular element using predefined search method in the collection framework. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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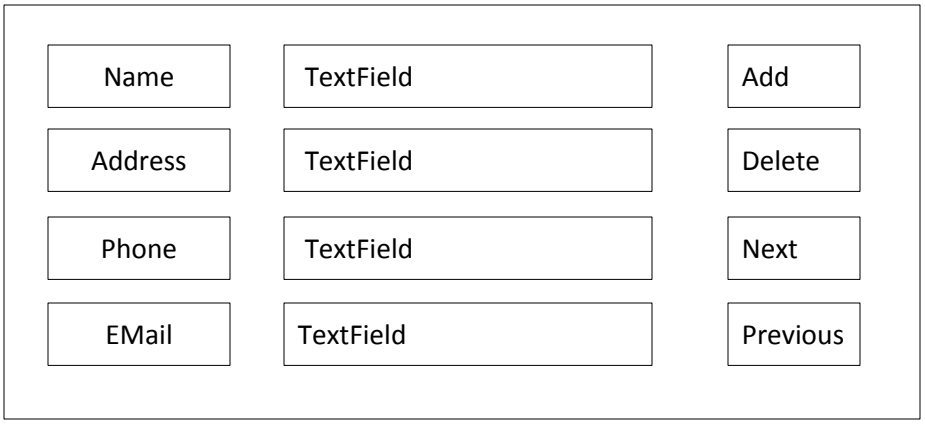
Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to create a package "SY" which has a class SYMARKS (Computer Total, MathsTotal, ElectronicsTotal). Create another package "TY" which has a class TYMarks (Theory, Practical). Create another package "TY" which has a class TYMarks(Theory, Practical). Create "n" objects of student class having roll number, name, SYMakrs and TYMarks. Add the marksof SY and TY Computer subjects and calculate grade ('A' for >=70, 'B' for >=60, 'C' for >=50, "Pass Class" for >=40 else "Fail") and display the result of the student in proper format. [30]

2. Design a following Phone Book Application Screen using swing. Display proper message if invalid data is entered like name left bank and negative phone number. Using Postgresql store the values in the table phone (Name, Address, Phone) if valid data is entered for all the fields and perform the various operations like Add, Delete, next and previous as shown on the screen. [30]



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Duration : 3 Hours **Maximum Marks : 80**

1. Define Student class (roll number, name, percentage). Define a default and parameterized constructor. Keep a count of object created. Create objects using parameterized constructor and display the object count after each object is created. (Use static member and method). Also display the contents of each object. Modify program to create "n" objects of the Student class. Accept details for each object. Define static method "sortStudent" which sorts the array on the basis of percentage. [30]
2. Create a JSP page for an online multiple choice test. The questions are randomly selected from a database and displayed on the screen. The choices are displayed using radio buttons. When the user clicks on next, the next question is displayed. When the user clicks on submit, display the total score on the screen. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
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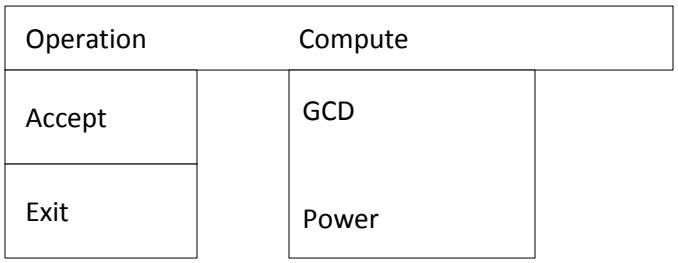
Duration : 3 Hours **Maximum Marks : 80**

1. Write a menu driven program to perform the following operations. Accept operation accept the two numbers using input dialog box. GCD will compute the GCD of two numbers and display it in message box and Power operation will calculate the value of a^n and display it in message box where "a" and "n" are two inputted values. [30]



2. Create a JSP page which accepts user name in a text box and greet the user according to the time on server side.
   Example:
   Input : User Name ABC
   Output : Good Morning ABC/Good Afternoon ABC/ Good Evening ABC [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Create an interface "CreditCardInterface" with methods: viewCreditAmount(), useCard(), payCard(), and increaseLimit(). Create a class "SolverCardCustomer" (name, cardnumber(16digit), creditamount-initialized to 0, creditLimit-set to 50,000) whch implements above interface. Inherit class GoldCardCustomer from SilverCardCustomer having same methods but creditLimit of 1,00,000. Create an object of each class and perform operations. Display appropriate messages for success or failure of transction. (Use method overloading) [30]
   a) useCard() method increase the creditAmount by a specific amount upto creaditLimit.
   b) payCreadit() reduces the creditAmount by a specific amount.
   c) increaseLimit() increases the creaditLimit for GoldCardCustomers (only 3 times, not more than 5000 rupees each time.)

2. Write a program to make use of the following JSP implicit objects: [30]
   a) out: To display current Date and Time
   b) request: To get header information
   c) response: To Add cookie
   d) config: get the parameters value defined in <init-param>
   e) application: get the parameter value defined in <context-param>
3. Viva (Java) (External) [5]
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Duration : 3 Hours **Maximum Marks : 80**

1. Write a program to create a super class Vehicle having members Company and price. Derive two different classes LightMotorVehicle(mileage) and HeavyMotorVehicle (capacity_in_tons). Accept the information for "n" vehicles and display the information in appropriate from. While taking data, ask user about the type of vehicle first. [30]
2. Create a JSP page for an online multiple choice test. The questions are randomly selected from a database and displayed on the screen. The choices are displayed using radio buttons. When the user clicks on next, the next question is displayed. When the user clicks on submit, display the total score on the screen. [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
5. Lab Book (Semester I and II) (Internal) [10]

Savitribai Phule Pune University
T.Y.B.Sc. (Computer Science) Practical Examination, March / October
(2013 Pattern)
CS – 348 Lab Course – II Programing in Java – I, Programing in Java – II & Computer Graphics

Duration : 3 Hours **Maximum Marks : 80**

1. Define a class Employee having members – id, name, department, salary. Define default and parameterized constructors. Create a subclass called Manager with private member bonus. Define methods accept and display in both the classes. Create "n" objects of the Manager class and display the details of the manager having the maximum total salary (salary + bonus). [30]
2. Write a program to create a shopping mall. User must be allowed to do purchase from two pages. Each page should have a page total. The third page should display a bill, which consists of page total of whatever the purchase has been done and print the total. (Use HttpSession). [30]
3. Viva (Java) (External) [5]
4. Demo of Mini project using Computer Graphics (Activity)
   On college machine using Linux in OpenGL (External) [5]
5. Lab Book (Semester I and II) (Internal) [10]