V.S.B. ENGINEERING COLLEGE, KARUR

Department of Electrical and Electronics Engineering

Academic Year 2017-18 (Even Semester)

ASSIGNMENT QUESTIONS

CLASS: II YEAR /IV SEMESTER

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DEPARTMENT OF MATHEMATICS

ASSIGNMENT

MA 6459 – NUMERICAL METHODS

Max.Marks: 50

PART-A (5 x 2 = 10 Marks)

(Answer all the questions)

1. Find a real root of the equation $x^3 + x^2 - 100 = 0$ by fixed point iteration method.
2. Use Newton Rapshon method to find the root of $f(x) = -0.4x^2 + 2.2x + 4.7$
3. Solve the equation $xe^x = 2$ by using RegulaFalsi method.
4. Using Gauss Jordan method find the inverse of the matrix $\begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix}$.
5. Solve $28x + 4y - z = 32; x + 3y + 10z = 24; 2x + 17y + 4z = 35$ by Gauss elimination method.

PART-B (5 x 8= 40 Marks)

(Answer all the questions)

6.Solve by Gauss-seidal iterative procedure the system
$8x - 3y + 2z = 20, 6x + 3y + 12z = 35, 4x + 11y - z = 33$.

7. Using power method, find the largest eigen value and the corresponding eigen vector

of the matrix $\begin{bmatrix} 1 & 6 & 1 \\ 1 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$.

8. Using Newton's divided differences formula determine $f(3)$ from the data:

x	0	1	2	4	5
f(x)	1	14	15	5	6

9. Find a real root of the equation $x^3 + x^2 - 1 = 0$ by iteration method.

10.Use Lagrange's method to find $log_{10}654 = 2.8156, log_{10}658 = 2.8182,$

$log_{10}659 = 2.8189, log_{10}661 = 2.8202$.

Signature of the faculty   **HOD**

Department of Electrical & Electronics Engineering

Academic Year: 2017-2018 (EVEN Semester)

Assignment QP

Name of the Course (Subject): Electrical Machines-I

Name of the Faculty member: M.Ramachandran

Class / Semester: II Year / IV Sem B.E. Electrical and Electronics Engineering

1. Enlighten about B-H curve and discuss the practical use of B-H curve.
2. Elucidate the cooling methods used in transformer in various industries.
3. Make clear the working of linear machines with neat diagram.
4. Illustrate the Parallel operation of generator and list the condition for parallel operation.
5. Why break test on D.C motor is not preferable and mention the advantage and disadvantage of break test.

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Assignment Questions

Class: II Year / IV Semester B.E. Electrical and Electronics Engineering
Name of Subject: CS6456- Object Oriented Programming
Name of Faculty member: R.Vijayaganth

1. Develop an abstract class polygon from which Triangle and Rectangle are derived. Each polygon should contain the function Area() to calculate the area of them. Invoke appropriate Area() function to calculate the area using pointer to base class and pointers to derived classes.

2. Develop an object oriented program in C++ to create a payroll system for an organization where one base class consist of employee name, code, designation and another base class consist of a account no and date of joining. The derived class consists of the data members such as basic pay. DA, HRA, CCA and deductions PF, LIC, IT.(Program must use the concept of virtual base class)

3. Write C++ code to construct class of a person with name and age as public properties, account details as private properties and % of mark as protected property. Construct a class with sports details of person. Construct a class to rank person based on the equal weight age to academic and sports details. Use the concept of inheritance.

4. Create a base class named 'shape' with two member's base and height a member function for initialization and virtual function to compute find area(). Derive two specific classes circle and rectangle which overrides the function find area ().Use these classes in the main function and display the area of circle and rectangle using virtual functions.

5. Write a C++ program to define a class called patient derive two classes from patient, namely in-patient and out-patient. Define two classes' namely general ward and special ward. For out-patient print the bill with consultation fee. For in-patient print bill according to their accommodation either in general ward or special ward.

6. Write a C++ code to create a base class house. There are two classes called door and window available. The house class has members which provide information related to the area of construction, doors, and window details. It delegates the responsibility of computing cost of doors and window construction to the door and window classes. Write the program to model the above relationship and find the cost of constructing the house.

7. What are abstract classes? Write a program having student as an abstract class and create many derived classes such as engineering, science, medical etc., from the student class. Create their object and process them.

8. Write a C++ program to assign 'n' projects to 'm' programmers based on skill set of programmers using friend function. Use static member variable to count number of assignments.

9. Create a base class shape. Take two data members of double types to compute the area of different shapes. Derive two classes' triangle and rectangle from the base shape. Include constructors in every class to initialize the objects. Include one pure virtual function compute_area() to compute area. Using these classes, write a C++ program to compute the area of triangle and rectangle. Use base class pointer to implement the virtual function.

10. Write a C++ program to accept integer or string values from the user within a specified range. (Range has to be specified with minimum and maximum by the user). If the input violates the range, appropriate exception needs to be raised.

11. It will be convenient to store time as two numbers, representing hour and minute. Create a class for storing time and overload the + operator to add two time instances and less than (<) operator to compare them.

12. Create a class code. Take one data member id in code. Create single parameter constructor to initialize the value of id. Also create and define copy constructor. In main(), create an object A of code and initialize it by 100. Now call the copy constructor to create another object B and initialize it by A. Display the corresponding id's to verify.

13. Create a class date. Overload the constructor in date to display the date in mm/dd/yyyy, dd/mm/yyyy and mm/yy

14. Implement a class student. A student has a name and a total quiz score.Supply an appropriate constructor and methods getName(), addQuiz(int score), getTotalScore() and getAverageScore(). To compute the latter, you also need to store the number of quizzes that the student took.

15. Create a class named employee with data members firstname, last name and member functions: earnings (Pure Virtual function) and Print (Virtual function).Derive a class called boss from employee and its data member is weeklysalary and member function: set_weekly_salary. Calculate and print the earnings appropriately.

16. Implement a class Address. An address has
    - a house number,
    - a street,
    - an optional apartment number,
    - a city,
    - a state and a
    - postal code.

    Supply two constructors:
    - one with an apartment number
    - and one without.

    Supply a print function that prints the address with the street on one line and the city, state, and

    postal code on the next line.

    Supply a method compareTo that tests whether one address comes before another when the

addresses are compared by postal code.

17. Write a C++ program to define a class named 'Car' with data members as Make, color, size and cost. Write member functions for reading values and printing values of car. Define one more class as Car collection which contains the member functions such as Add, Delete, Modify and Replace. Define Car collection as a friend of Car Class and access its values.

18. Implement the ATM transaction application in Java.

19. Implement a Java class called 'Student' with name, Marks of 3 subjects and total marks. Write another class named 'calculate' that gets the Marks of the student and calculates the total Marks and displays the result (pass or fail).

20. Illustrate the use of dereferencing operators to access the class members through pointers. To implement this take a class M, x and y as data members. Take two methods. One is to input the value of x and other sum. The sum is a friend function and the object of class M is passed arguments in sum. Sum will access the class members through dereferencing operators.

21. Create a class called Date that includes three pieces of information as instance variables
    1. Month (type int)
    2. Day (type int)
    3. Year (type int).
    Your class should have the following methods:
    - Constructor that initializes the three instance variables and assumes that the values provided are correct.
    - Provide a set and a get method for each instance variable.
    - Provide a method display Date that displays the month, day and year separated by forward
        Slashes (/).

22. Define a class String that could work as a user defined string type. Include constructors that will enable us to create an uninitialized String s1 and also initialize an object with a string constant at the time of creation like String s2("Happy Programming"). Include a function that adds two strings to make a third string. Note that the statement s2=s1; will be perfectly reasonable expression to copy one string into another. Write a complete program to test your class to see that it does the following tasks:
    - Creates uninitialized string objects
    - Creates objects with string constants
    - Concatenates two strings properly
    - Displays a desired string object

23. Assume that a bank maintains two kinds of accounts for customers, saving and current. Then savings account provides compound interest and withdrawal facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed. Create a class account that stores customer name, account number and type of account. Inherit the account class into cur_acct and sav_acct. Include the necessary member function and constructors to achieve the following tasks:
    - Accept deposit from a customer and update the balance.

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- Display the balance
- Compute and deposit interest
- Permit withdrawal and update the balance
- Check the minimum balance, impose penalty and update the balance

24. Write a program to sort the elements in odd positions in descending order and elements in
 Ascending Order
 Eg 1:
  Input: 13,2 4,15,12,10,5
  Output: 13,2,12,10,5,15,4

 Eg 2:
  Input: 1,2,3,4,5,6,7,8,9
  Output: 9,2,7,4,5,6,3,8,1

25. Write a program to give the following output for the given input
 Eg 1:
  Input: a1b10
  Output: abbbbbbbbbb
 Eg 2:
  Input: b3c6d15
  Output: bbbccccccddddddddddddddd
 The number varies from 1 to 99.

Signature of the faculty   **HOD**

V.S.B. ENGINEERING COLLEGE, KARUR

Department of Electrical & Electronics Engineering

Academic Year: 2017-2018 (EVEN Semester)

Assignment Questions

Class: II Year / IV Semester B.E. Electrical and Electronics Engineering
Name of Subject: EE6402-Transmisssion and Distribution
Name of Faculty member: R.Sivakumar

Date:

1. Explain the different types of FACTS controllers.

2. Discuss in detail the advantages, disadvantages and applications of HVDC transmission.

3. What is a sag-template? Explain how this is useful for location of towers and stringing of power conductors?

4. Explain the concept of self GMD and mutual GMD for evaluating inductance of transmission line.

5. Derive the capacitance of a three-phase overhead line

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V.S.B. ENGINEERING COLLEGE, KARUR

Department of Electronics and Communication Engineering

Academic Year: 2017-2018 (EVEN Semester)

Assignment Questions

Class: II Year / IV Semester B.E. Electrical and Electronics Engineering
Name of Subject: EE6403-Discrete Time Systems and Signal Processing
Name of Faculty member: R..R.Jegan

1. Using long division, determine the inverse z-transform of $X(z) = \frac{1+2z^{-1}}{1-2z^{-1}+z^{-2}}$ if

    (i) x(n) is causal and

    (ii) x(n) is anti-causal.

2. (i) Suppose you have a number of 8-point FFT chips. Suggest a scheme to interconnect four such chips to compute a 32-point DFT.

    (ii) Let $x_p(n)$ be a periodic sequence with fundamental period N. Let $X_1(k)$ denote N-point DFT of one period of $x_p(n)$ and $X_3(k)$ denote 3N-point DFT of three periods of $x_p(n)$. What is the relationship between $X_1(k)$ and $X_3(k)$ for $0 \leq k \leq N-1$?

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Department of Electrical & Electronics Engineering

Academic Year: 2017-2018 (EVEN Semester)

<u>Assignment Questions</u>

Class: II Year / IV Semester B.E. Electrical and Electronics Engineering

Name of Subject: Measurements and Instrumentation

Name of Faculty member: **Dr.K.Umamaheswari**

1. Explain in detail the calibration of energy meter.
2. Explain the working of step-up and step-down transformer.
3. What are the methods to eliminate a ground loop?
4. Explain about LED diodes.
5. Discuss the working of LVDT.

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