Assignment – 2

1. Given are two one-dimensional arrays A & B, which are sorted in ascending order. Write a Java program to merge them into single sorted array C that contains every item from arrays A & B, in ascending order.
2. Write a Java program to show 0-arguments constructor.
3. Write a Java program to show parameterized constructor.
4. Write a Java program to show constructor overloading.
5. Write a Java program to implement the concept of inheritance.
6. Write a Java program to show method overloading.
7. Write a Java program to show method overriding.
8. Write a Java program to show method hiding.
9. Create a general class ThreeDObject and derive the classes Box, Cube, Cylinder and Cone from it. The class ThreeDObject has methods wholeSurfaceArea ( ) and volume (). Override these two methods in each of the derived classes to calculate the volume and whole surface area of each type of three-dimensional objects. The dimensions of the objects are to be taken from the users and passed through the respective constructors of each derived class. Write a main method to test these classes.
10. Write a program to create a class named Vehicle having protected instance variables regnNumber, speed, color, ownerName and a method showData ( ) to show "This is a vehicle class". Inherit the Vehicle class into subclasses named Bus and Car having individual private instance variables routeNumber in Bus and manufacturerName in Car and both of them having showData ( ) method showing all details of Bus and Car respectively with content of the super class's showData ( ) method.
11. 10. Write a Java program which creates a base class Num and contains an integer number along with a method shownum() which displays the number. Now create a derived class HexNum which inherits Num and overrides shownum() which displays the hexadecimal value and octal value of the number. Demonstrate the working of the classes.
12. Create a base class Distance which stores the distance between two locations in miles and a method travelTime(). The method prints the time taken to cover the distance when the

speed is 60 miles per hour. Now in a derived class DistanceMKS, override travelTime() so that it prints the time assuming the distance is in kilometers and the speed is 100 km per second. Demonstrate the working of the classes.

13. Write a Java program to explain “multilevel inheritance.”
14. Write a program to define a class Employee to accept emp_id, emp _name, basic_salary from the user and display the gross_salary.
15. Write a program to demonstrate use of 'this' keyword.
16. Write a program to demonstrate use of 'static' keyword.
17. Write program, which finds the sum of numbers formed by consecutive digits.

    Input : 2415

    output : 24+41+15=80.
18. Create three interfaces, each with two methods. Inherit a new interface from the three, adding a new method. Create a class by implementing the new interface and also inheriting from a concrete class. Now write four methods, each of which takes one of the four interfaces as an argument. In main ( ), create an object of your class and pass it to each of the methods.
19. Write a Java program to show the use of all keywords for exception handling.
20. Write a Java program using try and catch to generate NegativeArrayIndex Exception and Arithmetic Exception.
21. Write a program that outputs the name of the capital of the country entered at the command line. The program should throw a “NoMatchFoundException” when it fails to print the capital of the country entered at the command line.
22. Write a java program to create an custom Exception that would handle at least 2 kind of Arithmetic Exceptions while calculating a given equation
23. Create two user-defined exceptions named “TooHot” and “TooCold” to check the temperature (in Celsius) given by the user passed through the command line is too hot or too cold.

    If temperature > 35, throw exception “TooHot”.

    If temperature <5, throw exception “TooCold”.

Otherwise, print “Normal” and convert it to Farenheit.

24. Consider an Employee recruitment system that prints the candidate name based on the age criteria. The name and age of the candidate are taken as Input.Create two user-defined exceptions named “TooOlder” and “TooYounger”

    If age>45, throw exception “TooOlder”.

    If age<20, throw exception “TooYounger”.

    Otherwise, print “Eligible” and print the name of the candidate.

25. Write a program to raise a user defined exception if username is less than 6 characters and password does not match.

26. Write a program to input name and age of a person and throw a user-defined exception, if the entered age is negative