ANS 1:

```java
import java.util.Scanner;
class Student{
    String USN,name;
    int sem;
    Scanner sc = new Scanner(System.in);
    void setStuDetails(){
        System.out.println("Enter USN of Student: ");
        this.USN = sc.next();
        System.out.println("Enter Name of Student: ");
        this.name = sc.next();
        System.out.println("Enter Semester of Student: ");
        this.sem = sc.nextInt();
    }

    void getStuDetails(){
        System.out.println("USN: " + this.USN);
        System.out.println("Name: " + this.name);
        System.out.println("Semester: " + this.sem);
    }
}

class Test extends Student{
    double cieMarks[] = new double[5];
    int credits[] = new int[5];
    int totalCredits = 0;
    void setCieDetails(){
        for(int i=0;i<cieMarks.length;i++){
            System.out.println("Enter CIE marks(50) in course" + (i+1) + ": ");
            cieMarks[i] = sc.nextDouble();
```

```java
            System.out.println("Enter credits of course" + (i+1) + ": ");

            credits[i] = sc.nextInt();

            totalCredits += credits[i];

        }

    }


}


class Exam extends Test{

    double seeMarks[] = new double[5];

    double totalMarks[] = new double[5];

    int totCredits = super.totalCredits;

    void setSeeDetails(){

        for(int i=0;i<cieMarks.length;i++){

            System.out.println("Enter SEE marks(100) in course" + (i+1) + ": ");

            seeMarks[i] = sc.nextDouble()/2;

        }

        calcTotalMarks();

    }

    void calcTotalMarks(){

        for(int i=0;i<5;i++){

            totalMarks[i] = cieMarks[i] + seeMarks[i];

        }

    }

}


class Result extends Exam{

    char grades[] = new char[5];

    double sgpa = 0;

    int points[] = new int[5];

    void calcSGPA(){
```

```java
    for(int i = 0;i<5;i++){

        if(totalMarks[i] > 100){

            System.out.println("Error: Marks are above 100");

            return;

        }else if(totalMarks[i] >= 90){

            points[i] = 10;

        }else if(totalMarks[i] >= 80){

            points[i] = 9;

        }else if(totalMarks[i] >= 70){

            points[i] = 8;

        }else if(totalMarks[i] >= 60){

            points[i] = 7;

        }else if(totalMarks[i] >= 50){

            points[i] = 5;

        }else if(totalMarks[i] >= 40){

            points[i] = 4;

        }else{

            points[i] = 0;

        }


        sgpa += (points[i]*credits[i]);

    }

}

void calcGrade(){

    for(int i = 0;i<5;i++){

        if(totalMarks[i] > 100){

            System.out.println("Error: Marks are above 100");

            return;

        }else if(totalMarks[i] >= 90){

            grades[i] = 'S';
```

```java
        }else if(totalMarks[i] >= 80){

            grades[i] = 'A';

        }else if(totalMarks[i] >= 70){

            grades[i] = 'B';

        }else if(totalMarks[i] >= 60){

            grades[i] = 'C';

        }else if(totalMarks[i] >= 50){

            grades[i] = 'D';

        }else if(totalMarks[i] >= 40){

            grades[i] = 'E';

        }else{

            points[i] = 'F';

        }

      }

   }


    void getSGPA(){

        System.out.format("SGPA is %.2f\n",(sgpa/totalCredits));

    }


    void getGrades(){

        for(int i=0;i<5;i++){

            System.out.println("Subject "+(i+1)+": " + grades[i]);

        }

    }

}


class Testj{

    public static void main(String[] args) {

        int n = 0;

        Scanner sc = new Scanner(System.in);
```

```java
        System.out.println("Enter number of students");

        n = sc.nextInt();

        Result results[] = new Result[n];

        for(int i=0;i<n;i++){

            results[i] = new Result();

            results[i].setStuDetails();

            results[i].setCieDetails();

            results[i].setSeeDetails();

            results[i].calcSGPA();

            results[i].calcGrade();

        }

        for(int i=0;i<n;i++){

            results[i].getStuDetails();

            results[i].getSGPA();

            results[i].getGrades();

        }

    }

}
```


Command Prompt

```
D:\Java programs>Javac Test.java

D:\Java programs>java Testj
Enter number of students
2
Enter USN of Student:
1BM19CS019
Enter Name of Student:
ANSH
Enter Semester of Student:
3
Enter CIE marks(50) in course1:
35
Enter credits of course1:
3
Enter CIE marks(50) in course2:
45
Enter credits of course2:
3
Enter CIE marks(50) in course3:
34
Enter credits of course3:
5
Enter CIE marks(50) in course4:
35
Enter credits of course4:
4
Enter CIE marks(50) in course5:
35
Enter credits of course5:
5
Enter SEE marks(100) in course1:
67
Enter SEE marks(100) in course2:
68
Enter SEE marks(100) in course3:
67
Enter SEE marks(100) in course4:
68
Enter SEE marks(100) in course5:
67
Enter USN of Student:
1BM19CS012
Enter Name of Student:
VISHAL
Enter Semester of Student:
3
Enter CIE marks(50) in course1:
34
```

```
3
Enter CIE marks(50) in course1:
34
Enter credits of course1:
45
Enter CIE marks(50) in course2:
34
Enter credits of course2:
4
Enter CIE marks(50) in course3:
45
Enter credits of course3:
4
Enter CIE marks(50) in course4:
34
Enter credits of course4:
5
Enter CIE marks(50) in course5:
45
Enter credits of course5:
3
Enter SEE marks(100) in course1:
69
Enter SEE marks(100) in course2:
89
Enter SEE marks(100) in course3:
89
Enter SEE marks(100) in course4:
89
Enter SEE marks(100) in course5:
87
USN: 1BM19CS019
Name: ANSH
Semester: 3
SGPA is 7.15
Subject 1: C
Subject 2: B
Subject 3: C
Subject 4: C
Subject 5: C
USN: 1BM19CS012
Name: VISHAL
Semester: 3
SGPA is 7.38
Subject 1: C
Subject 2: B
Subject 3: A
Subject 4: B
Subject 5: A
```