1. Write a function, printgrid, that takes two parameters, (one parameter is a two-dimensional array and the second parameter is for the number of rows) and print the following grid structure using repetition and controlled statements. After that call the function, printgrid, in the main program.

```
#  #
#  1#
# 1 2  #
# 1 2 3  #
# 1 2 3 4  #
# 1 2 3 4 5  #
# 1 2 3 4 5 6  #
# 1 2 3 4 5 6 7  #
#  #  #  #  #  #  #  #  #
```

2. Write a function in C++ using the one dimensional array to calculate the following quantity:

\[
\sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{x})^3}{n(n-1)}}
\]

where,
\(x_i\) denotes the data stored in the cells of array
\(\bar{x}\) denotes the average of the data stored in the array
\(n\) denotes the number of data stored in the array and \(n > 1\)

3. Write a program to find the inverse of a \(3 \times 3\) matrix over the field \(\mathbb{Z}_{23}\) entered by the user, if the determinant of the matrix is non-zero. The program also finds the sum of the square of the diagonal elements under modulo 23 of the inverse of the given matrix.

4. Write a program which finds the solution of the following system of equations by matrix inversion method.

\[
\begin{align*}
2x + y + 2z &= 0, \\
2x - y + z &= 10, \\
x + 3y - z &= 5.
\end{align*}
\]
5. Find the all errors of given program

```c++
#include<iostream>

Using Namespace Std:

void Swap(int *x, int *y):

Intmain()
{

    Int a, b, d;
    a = 4;
    b = 2;
    c = c + a;
    j = 1;
    for(k = 1; k<=n, k++)
    {
        cout<<setw(4)<< j;
        j = j + 3
        d = d +Pow(k, 2);
        cout<<"the Value of l in the" <<k<<"th iteration is ”<<l<<endl;
    }

    Double p;
    p = Sqrt{c, 3};
    cout<<p<<endl;
}

void swap (int *px, int *py)
{

    int temp;
    temp = *px
    *px = *py
    *py = temp
}

Write the correct program of part (a)

Write the equivalent programs by using while and do... while loops.
```
Attendance Marks based on Attendance percentage is given in following table:

<table>
<thead>
<tr>
<th>Attendance Percentage</th>
<th>Marks for Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>67 % ≤ Attendance &lt; 70 %</td>
<td>1 % of Maximum Marks for Attendance</td>
</tr>
<tr>
<td>70 % ≤ Attendance &lt; 75 %</td>
<td>2 % of Maximum Marks for Attendance</td>
</tr>
<tr>
<td>75 % ≤ Attendance &lt; 80 %</td>
<td>3 % of Maximum Marks for Attendance</td>
</tr>
<tr>
<td>80 % ≤ Attendance &lt; 85 %</td>
<td>4 % of Maximum Marks for Attendance</td>
</tr>
<tr>
<td>85 % ≤ Attendance</td>
<td>5 % of Maximum Marks for Attendance</td>
</tr>
</tbody>
</table>

iv. Internal Assessment Marks = Test Marks + Assignment Marks + Attendance Marks

Print the following details for each student:

<table>
<thead>
<tr>
<th>Roll Number</th>
<th>Student Name</th>
<th>Test Marks</th>
<th>Assignment Marks</th>
<th>Attendance Marks</th>
<th>Internal Assessment Marks</th>
</tr>
</thead>
</table>
