(Part II) Solutions Lab-session 6

1) Sub Determinant()

    Dim MA As Variant

    MA = Range("A11:C13").Value

    det = MA(1, 1) * (MA(2, 2) * MA(3, 3) - MA(2, 3) * MA(3, 2))

    det = det - MA(1, 2) * (MA(2, 1) * MA(3, 3) - MA(3, 1) * MA(2, 3))

    det = det + MA(1, 3) * (MA(2, 1) * MA(3, 2) - MA(2, 2) * MA(3, 1))

    Range("A15").Value = "Det A:"

    Range("B15").Value = det

    MsgBox ("The determinant of A is:" & det)

End Sub

2) Sub Transpose()

Dim MA As Variant

Dim MB(1 To 3, 1 To 3)

MA = Range("A11:C13").Value

For i = 1 To 3

    For j = 1 To 3

        MB(i, j) = MA(j, i)

    Next j

  Next i

Range("A19").Value = "The transposed of the Matrix B:"

Range("A20:C22").Value = MB

End Sub

3) Sub MatrixMult()

Dim MA, MB As Variant

```vba
    Dim MC(1 To 3, 1 To 3)

    MA = Range("A11:C13").Value

    MB = Range("E11:G13").Value

    For i = 1 To 3

            For j = 1 To 3

                    MC(i, j) = MA(i, 1) * MB(1, j) + MA(i, 2) * MB(2, j) + MA(i, 3) * MB(3, j)

            Next j

        Next i

        Range("I11:K13").Value = MC

    End Sub
```

4)
```vba
    Sub Search()

    Dim MA As Variant

    MA = Range("A1:Z30").Value

      For i = 1 To 30

            For j = 1 To 26

              If MA(i, j) = "City" Then

                      Range("A1").Value = "City is written in row " & i & " column  " & j

            GoTo  fin

             Else

             Range("A1").Value = "Can not find City on the worksheet."

             End If

             Next j

        Next i

    fin:

    End Sub
```