Q1) Write the Visual Basic code for the following operation in one statement:

1. Make the width of Text1 equal the height of Command1.
2. Make the height of Command1 equal half of Form1 height.
3. Change the color of the text written in Text1 to blue.
4. Paint the Form1 by the same color of Command1.
5. Set font size of Command1 same as font size of Text1.
6. Make text font of Text1 same as font of Command1.
7. Disable the Command1.
8. Make Text1 locked.
9. Make Option2 selected.
10. Display caption of Label1 on Text1.
11. Display text font of Text1 on Label1.
12. \[ y = \sqrt{\frac{\tan^{-1}x - x^3}{e^x}} \]
13. Print the length of text written in Text1.
14. Display the ASCII of the character written in Text1 on Label1.
15. Replace the Left (Text1.Text, 4) by Mid (       ) if length of Text1 is 7.
16. Replace Right (Text1.Text, 3) by Mid (       ) if length of Text1 is 7.
17. \[ y = x^3 - 5 \quad \text{if} \quad x \geq 0 \]
18. Jump to location Z if the x ≠ 5
19. Exit For-Next statements if y > 600
20. \[ y = \begin{cases} x - 6 & \text{if} \quad x > 5 \\ x^2 & \text{if} \quad x \leq 5 \end{cases} \]
21. \[ y = \begin{cases} x^2 & \text{if} \quad x \leq 5 \\ x - 6 & \text{if} \quad x > 5 \end{cases} \]
22. \[ y = \begin{cases} x^2 & \text{if} \quad x = 1 \\ x + 5 & \text{if} \quad x = 2 \\ 60 & \text{if} \quad x = 3 \end{cases} \]
23. \[ y = \begin{cases} x^2 & \text{if} \quad x < 1 \\ x + 5 & \text{if} \quad x = 2 \\ 60 & \text{if} \quad x > 3 \end{cases} \]
24. \[ y = \sqrt{\tan^{-1}(D + C)} \]
25. Display the length of one dimension array (A) on Text1 if option base is 1.
26. Display the length of one dimension array (A) on Text1 if option base is 0.
27. Display the text written in Text1 on massage box.
28. Change Shape1 to circle.
29. Write the statement for Function sum(A, B) that find the summation of A and B.
30. Write the statement for Private Sub sum(D, A, B) that find the summation of A and B.
Q2) Write the outputs of the following project:

```vbnet
Option Base 1

Private Sub Command1_Click()
    Dim a(10) As String
    For i = 1 To 10
        a(i) = Mid(Text1.Text, i, 1)
    Next i
    For i = 1 To 10
        Print a(i);
    Next i
    Print
    For i = 1 To 5
        Print a(i)
    Next i
    For i = 10 To 1 Step -1
        Print a(i);
    Next i
End Sub

Private Sub Form_Load()
    Text1.Text = "ABCDEFGHIJ"
    Command1.Caption = "Display"
End Sub
```
Q3) what is the contents of the all Texts in the following project after click the Exchange Command:

Private Sub Command1_Click()
    x = Text1.Text
    y = Text2.Text
    Text1.Text = Text3.Text
    Text2.Text = x
    Text3.Text = y
End Sub

Private Sub Form_Load()
    Text1.Text = "Electrical"
    Text2.Text = "Electronic"
    Text3.Text = "Communication"
    Command1.Caption = "Exchange"
End Sub
Q4) what is the contents of the all Texts in the following project after click the Divided Command:

```vbnet
Private Sub Command1_Click()
    n = Len(Text1.Text)
    X1 = Fix(n / 2)
    X2 = n - X1
    Text2.Text = Left(Text1.Text, X1)
    Text3.Text = Right(Text1.Text, X2)
End Sub

Private Sub Form_Load()
    Text1.Text = "ABCDEFGHI"
    Text2.Text = ""
    Text3.Text = ""
    Command1.Caption = "Divided"
End Sub
```
Q5) Write the outputs of the following project if the \(a = [1 \ 5 \ -5 \ 6 \ -2]\):

```vba
Option Base 1

Private Sub Command1_Click()
    Dim a(5) As Integer
    For i = 1 To 5
        a(i) = InputBox("input the elements of array")
    Next i
    x = a(1)
    For i = 1 To 5
        If x > a(i) Then x = a(i)
    Next i
    Print x
End Sub

Private Sub Form_Load()
    Command1.Caption = "Find"
End Sub
```

Q6) design a project to calculate the values of \((y, z)\) and print them

\[
y = \begin{cases} 
  x^2 & \text{if } x \leq 5 \\
  x+2 & \text{if } 7 < x < 9 \\
  100 & \text{if } x = 10 
\end{cases}
\]

\[
z = \begin{cases} 
  x^4 & \text{if } x \leq 5 \\
  x-3 & \text{if } x = 10
\end{cases}
\]
Q7) design a project to calculate the value \( y \) and print it (use select case).

\[
y = \begin{cases} 
  x + 5 & \text{if } x = 1, 2, 3, 4 \\
  x^2 & \text{if } 5 \leq x \leq 10 \\
  60 & \text{if } x > 11
\end{cases}
\]

Q8) design a project to calculate the value \( y \) and print it.

\[y = 1 - x + x - x^3 + x^4 - x^5 \ldots \ldots \ldots \ldots x^n\]

Q9) design a project to calculate the value \( y \) and print it.

\[y = 1 + \frac{1}{x} + \frac{2}{x^2} + \frac{6}{x^3} + \frac{24}{x^4} + \ldots \ldots \ldots \ldots \frac{n!}{x^n}\]

Q10) design a project to calculate the value \( y \) and print it.

\[y = \sum_{i=5}^{\infty} \frac{i}{x^i}, \quad \text{while } y \leq 500\]

Q11) design form with three option boxes and two commands. Write code so that run time when the user:

- Select first option box, back color of form change to red.
- Select second option box, back color of form change to blue.
- Select third option box, back color of form change to green.
- Click on command1, the second option box is selected.
- Click on command2, the next option box is selected.

Q12) write the visual basic code to put each character of the text written in Text1 in one element of one dimensional array \( a \) and print array \( a \) as a column.

Q13) write the visual basic code to reverse the elements of one dimensional array \( a \) and print array \( a \) as a row.

Q14) write the visual basic code to find the largest element of one dimensional array \( a \) and print it.

Q15) write the visual basic code to sort the one dimensional array \( a \) in descending order and print it.

Q16) write the visual basic code to input the elements of two dimensional array \( a(n,m) \) in row-row and print it.

Q17) write the visual basic code to print the main diagonal of two dimensional array \( a(n,m) \).
Q18) write the visual basic code to clear the upper triangular matrix of two dimensional array \((a(n,n))\) and print it.

Q19) write the visual basic code to create array \(b(m,n)\) which equal to replace the rows by columns elements of array \(a(n,m)\) and print it.

Q20) write the visual basic code to create array \(d(n,m)\) from the arrays \(a(n,m)\) and \(b(n,m)\) according to the following equation:

\[ d = \sqrt{a^2 + b^2} \quad \text{for each element} \]

Q21) repeat (q20) using **Function** statement.

Q22) repeat (q20) using **Subroutine**.

Q23) write the visual basic code to convert the number written in **Text1** to binary number and print it. (Note; the number is less than 16)

Q24) write the visual basic code to print the truth table state for 4-bit.
Q1)

1. Text1.Width = Command1.Height
2. Command1.Height = ScaleHeight / 2
3. Text1.ForeColor = vbBlue
5. Command1.FontSize = Text1.FontSize
6. Text1.FontName = Command1.Font
7. Command1.Enabled = False
8. Text1.Locked = True
9. Option2.Value = True
11. Label1.Caption = Text1.FontName
12. y = Sqr((Atn(x) - x ^ 2) / Exp(x))
13. Print Len(Text1.Text)
15. Min(Text1.Text, 1, 4)
16. Mid(Text1.Text, 5, 3)
17. If x >= 0 Then y = x ^ 2 - 5
18. If x <> 5 Then GoTo Z
19. If y > 600 Then Exit For
20. y = IIf(x > 5, x - 6, x ^ 2)
21. y = Switch(x > 5, x - 6, x < 5, x ^ 2)
22. y = Choose(x, x ^ 2, x - 5, 60)
23. y = Switch(x > 1, x ^ 2, x = 2, x - 5, x > 3, 60)
24. y = ((Not A) And B) Xor (D Or C)
25. Text1.Text = UBound(A)
26. Text1.Text = UBound(A) + 1
27. MsgBox (Text1.Text)
28. Shape1.Shape = 3
29. sum = A + B
30. D = A + B

Q2)
Q3)

![Visual Basic form 1](image1)

Q4)

![Visual Basic form 2](image2)

Q5)

![Visual Basic form 3](image3)
Q6)

```
Private Sub Command1_Click()
    x = Val(Text1.Text)
    If x <= 5 Then
        y = x ^ 2
        z = x ^ 4
    ElseIf x > 7 And x < 9 Then
        y = x + 2
    ElseIf x = 10 Then
        y = 100
        z = x - 3
    End If
    Print "y="; y
    Print "z="; z
End Sub

Private Sub Form_Load()
    Text1.Text = ""
    Command1.Caption = "Find"
End Sub
```
Private Sub Command1_Click()
    x = Val(Text1.Text)
    Select Case x
    Case 1, 2, 3, 4
        y = x + 5
    Case 5 To 10
        y = x ^ 2
    Case Is > 11
        y = 60
    End Select
    Print "y="; y
End Sub

Private Sub Form_Load()
    Text1.Text = ""
    Command1.Caption = "Calculate"
End Sub
8)

Private Sub Command1_Click()
    n = InputBox("input value of n")
    x = Val(Text1.Text)
    y = 0
    For i = 1 To n
        y = y + x ^ i * (-1) ^ i
    Next i
    Print "y="; y
End Sub

Private Sub Form_Load()
    Text1.Text = ""
    Command1.Caption = "Calculate"
End Sub
Q9)

Private Sub Command1_Click()
    n = InputBox("input value of n")
    x = Val(Text1.Text)
    y = 0
    For i = 1 To n
        k = 1
        If i = 0 Then GoTo z
        For j = 1 To i
            k = k * j
        Next j
        z: y = y + k / x ^ i
    Next i
    Print "y="; y
    End Sub

Private Sub Form_Load()
    Text1.Text = ""
    Command1.Caption = "Calculate"
    End Sub
Q10)

Private Sub Command1_Click()
    x = Val(Text1.Text)
    y = 0
    i = 4
    Do While y <= 500
        i = i + 1
        y = y + i / x ^ i
    Loop
    Print "y="; y
End Sub

Private Sub Form_Load()
    Text1.Text = ""
    Command1.Caption = "Calculate"
End Sub
Q11)

Private Sub Command1_Click()
    Option2.Value = True
End Sub

Private Sub Command2_Click()
    If Option1.Value = True Then
        Option1.Value = False
        Option2.Value = True
    ElseIf Option2.Value = True Then
        Option2.Value = False
        Option3.Value = True
    ElseIf Option3.Value = True Then
        Option3.Value = False
        Option1.Value = True
    End If
End Sub

Private Sub Form_Load()
    Option1.Caption = "Red"
    Option2.Caption = "Blue"
    Option3.Caption = "Green"
    Command1.Caption = "Second"
    Command2.Caption = "Next"
End Sub

Private Sub Option1_Click()
Form1.BackColor = vbRed
End Sub

Private Sub Option2_Click()
Form1.BackColor = vbBlue
End Sub

Private Sub Option3_Click()
Form1.BackColor = vbGreen
End Sub

Q12)

Option Base 1
Private Sub Command1_Click()
Dim a() As String
n = Len(Text1.Text)
ReDim a(n) As String
For i = 1 To n
 a(i) = Mid(Text1.Text, i, 1)
Next i
For i = 1 To n
 Print a(i)
Next i
End Sub

Q13)

Option Base 1
Private Sub Command1_Click()
Dim a() As Integer
n = InputBox("input the length of array")
ReDim a(n) As Integer
For i = 1 To n
 a(i) = InputBox("input the array element")
Next i
For i = 1 To n / 2
 x = a(i)
 a(i) = a(n + 1 - i)
 a(n + 1 - i) = x
Next i
For i = 1 To n
Q14)
Option Base 1
Private Sub Command1_Click()
Dim a() As Integer
n = InputBox("input the length of array")
ReDim a(n) As Integer
For i = 1 To n
a(i) = InputBox("input the array element")
Next i
Max = a(1)
For i = 1 To n
If Max < a(i) Then Max = a(i)
Next i
Print "Max="; Max
End Sub

Q15)
Option Base 1
Private Sub Command1_Click()
Dim a() As Integer
n = InputBox("input the length of array")
ReDim a(n) As Integer
For i = 1 To n
a(i) = InputBox("input the array element")
Next i
For i = 1 To n - 1
For j = i + 1 To n
If a(i) < a(j) Then
x = a(i)
a(i) = a(j)
a(j) = x
End If
Next j
Next i
For i = 1 To n
Print a(i); " ";
Next i
End Sub
Q16)

Option Base 1
Private Sub Command1_Click()
Dim a() As Integer
n = InputBox("input the number of row")
m = InputBox("input the number of column")
ReDim a(n, m) As Integer
For i = 1 To n
For j = 1 To m
a(i, j) = InputBox("input the array element in row")
Next j
Next i
For i = 1 To n
For j = 1 To m
Print a(i, j); " ";
Next j
Next i
End Sub

Q17)

Option Base 1
Private Sub Command1_Click()
Dim a() As Integer
n = InputBox("input the number of row")
m = InputBox("input the number of column")
ReDim a(n, m) As Integer
For i = 1 To n
For j = 1 To m
a(i, j) = InputBox("input the array element in row")
Next j
Next i
For i = 1 To n
For j = 1 To m
If i = j Then Print a(i, j)
Next j
Next i
End Sub
Q18)

Option Base 1
Private Sub Command1_Click()
    Dim a() As Integer
    n = InputBox("input the number of row")
    ReDim a(n, n) As Integer
    For i = 1 To n
        For j = 1 To n
            a(i, j) = InputBox("input the array element in row")
        Next j
        Next i
    For i = 1 To n
        For j = 1 To n
            If i < j Then a(i, j) = 0
        Next j
        Next i
    For i = 1 To n
        For j = 1 To n
            Print a(i, j); " ";
        Next j
        Print
    Next i
End Sub

Q19)

Option Base 1
Private Sub Command1_Click()
    Dim a(), b() As Integer
    n = InputBox("input the number of row")
    m = InputBox("input the number of column")
    ReDim a(n, m), b(m, n) As Integer
    For i = 1 To n
        For j = 1 To m
            a(i, j) = InputBox("input the array element in row")
        Next j
        Next i
    For i = 1 To m
        For j = 1 To n
            b(i, j) = a(j, i)
        Next j
        Next i
End Sub
For i = 1 To m
    For j = 1 To n
        Print b(i, j); " ";
    Next j
    Print
Next i
End Sub

Option Base 1
Private Sub Command1_Click()
    Dim a(), b(), d()
    n = InputBox("input the number of row")
    m = InputBox("input the number of column")
    ReDim a(n, m), b(n, m), d(n, m)
    For i = 1 To n
        For j = 1 To m
            a(i, j) = InputBox("input the array(a)element in row")
        Next j
    Next i
    For i = 1 To n
        For j = 1 To m
            b(i, j) = InputBox("input the array(b)element in row")
        Next j
    Next i
    For i = 1 To n
        For j = 1 To m
            d(i, j) = Sqr(a(i, j) ^ 2 + b(i, j) ^ 2)
        Next j
    Next i
    For i = 1 To n
        For j = 1 To m
            Print d(i, j); " ";
        Next j
        Print
    Next i
End Sub
Q21)

Option Base 1
Function s(x, y)
    s = Sqr(x ^ 2 + y ^ 2)
End Function

Private Sub Command1_Click()
    Dim a(), b(), d()
    n = InputBox("input the number of row")
    m = InputBox("input the number of column")
    ReDim a(n, m), b(n, m), d(n, m)
    For i = 1 To n
        For j = 1 To m
            a(i, j) = InputBox("input the array(a)element in row")
            Next j
        Next i
        For j = 1 To m
            b(i, j) = InputBox("input the array(b)element in row")
            Next j
        Next i
        For i = 1 To n
            For j = 1 To m
                d(i, j) = s(a(i, j), b(i, j))
                Next j
            Next i
            For j = 1 To m
                Print d(i, j); " ";
            Next j
            Print
        Next i
    Next i
End Sub
Option Base 1
Private Sub s(x, y, z)
    z = Sqr(x ^ 2 + y ^ 2)
End Sub
Private Sub Command1_Click()
    Dim a(), b(), d()
    n = InputBox("input the number of row")
    m = InputBox("input the number of column")
    ReDim a(n, m), b(n, m), d(n, m)
    For i = 1 To n
        For j = 1 To m
            a(i, j) = InputBox("input the array(a) element in row")
        Next j
    Next i
    For i = 1 To n
        For j = 1 To m
            b(i, j) = InputBox("input the array(b) element in row")
        Next j
    Next i
    For i = 1 To n
        For j = 1 To m
            Call s(a(i, j), b(i, j), d(i, j))
        Next j
    Next i
    For i = 1 To n
        For j = 1 To m
            Print d(i, j); " "
        Next j
    Next i
    Print
End Sub
Q23)
Option Base 1

Private Sub Command1_Click()
Dim a(4) As Integer
x = Val(Text1.Text)
For i = 4 To 1 Step -1
a(i) = x Mod 2
x = Fix(x / 2)
Next i
For i = 1 To 4
Print a(i); " ";
Next i
End Sub

Q24)
Option Base 1

Private Sub Command1_Click()
Dim a(4) As Integer
For j = 0 To 15
x = j
For i = 4 To 1 Step -1
a(i) = x Mod 2
x = Fix(x / 2)
Next i
For i = 1 To 4
Print a(i); " ";
Next i
Print
Next j
End Sub