



Subject: Computer Programming
Division: all Divisions
Examiner: Committee

Year: 2nd
Time: 3 Hours
Date: 14 / 6 / 2016

Answer FOUR Questions Only

Q1: A) Convert the following arithmetic formula to visual Basic language: (10 Marks)

1. $10 * S = \left(x * \sqrt[4]{1 + a^2 x^2} + \frac{1}{a} \log |(ax + \sqrt{3 - x^2})| \right)$

2. $F = \frac{\frac{1}{d} - 2!}{d - 5} \ln(a)$

3. $y = \sin x^2 \sqrt{\frac{e^4 + \cos 45}{1 - \tan 35}}$

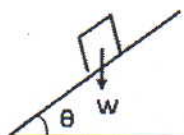
4. $y = \frac{\pi}{5} \left(\frac{M}{100}\right)^2 \left[1 - \left(\frac{M}{7}\right)^{1.63}\right]^{0.53}$

Q1: B) Write a visual basic program to enter the value of bodyweight (W), the slop surface angle (θ) and the coefficient of friction (μ) by using inputbox statement. The program calculate the (F) value and (F_s) from the following equations below.

When the value (F < F_s), the program display message box ("Static"), When the value (F = F_s), the program display message box ("Start to Move"), When the value (F > F_s), the program display message box ("Moving").

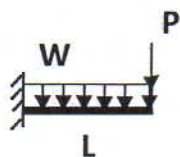
$F = W * \sin(\theta)$

$F_s = \mu * W * \cos(\theta)$



(15 Marks)

Q2:A) Create a visual basic project to find the value of concentrated load (P in kN) and uniform load (W in kN/m) for the cantilever beam shown below. Write a code program to enter the value of (L, Ry & Mom). The program compute and print the value of (P (kN) & W (kN/m)) from the following equations. Design a form window and select all the control objects are used. (13 Marks)



$$P = \frac{2 \text{ Mom}}{L} - R_y \quad ; \quad W = \frac{2 R_y}{L} - \frac{2 \text{ Mom}}{L^2}$$

Q2:B) Design a form with one label (Name) , two check box (Background & change) and one command (Close). Write a visual basic program for the following tasks:

- 1- Use command1 (Close) to end the program.
- 2- Use check1(Background) to change the back ground color for the label (Name) and form window,
- 3- Use check2 to change the name caption for (Command (Close) to (Exit)).

(12 Marks)

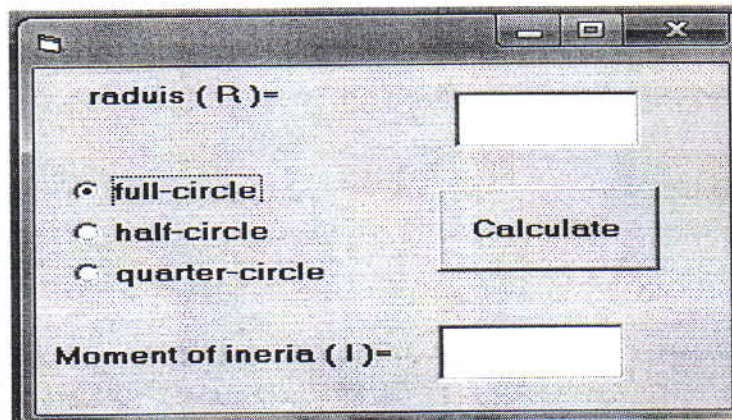
Q3:) Write a visual basic program to enter the value of radius (R) into text box. Find the moment of inertia (I) for a circle section and display the value (I) in the text box for the following tasks: (25Marks)

- 1- Use option1 to calculate the value of the moment of inertia for (full-circle)
- 2- Use option2 to calculate the value of the moment of inertia for (half-circle)
- 3- Use option3 to calculate the value of the moment of inertia for (quarter-circle)

$$I_{full-circle} = \frac{\pi R^4}{4}$$

$$I_{half-circle} = \frac{\pi R^4}{8}$$

$$I_{quarter-circle} = \frac{\pi R^4}{16}$$

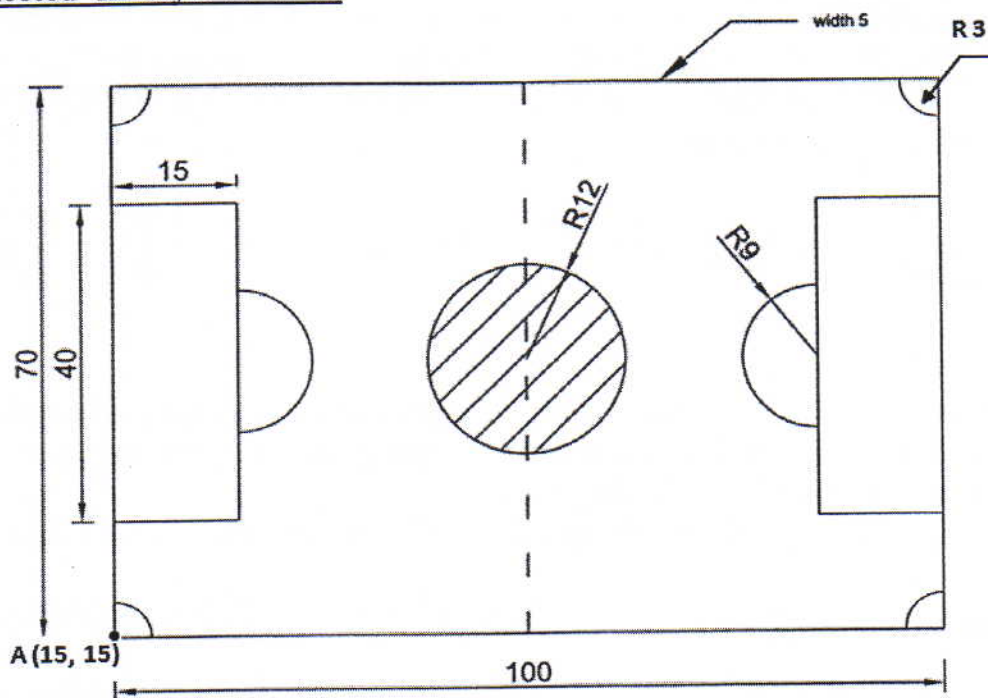


Q4:) For the purpose of calculating and print the value of the series (Sum) from the following formula below. Write a visual basic program to enter the values of (Y, X) and the number of terms (N). Design the form with marking all the tools used on it. (25 Marks)

$$Sum = (X + y) - \frac{X + Y^3}{2!} + \frac{X + Y^6}{4!} - \frac{X + Y^9}{6!} + \dots$$

Q5: Write a code program to draw the figure as shown below. Start from point A (15 , 15). Use scale (0,100)-(130, 0) (25 Marks)

Note: Neglected fill style of circle



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Q1: A)

1- $S=1/10*(x*(1+a^2*x^2)^{(1/4)}+1/a*\log(\text{abs}(a*x+\text{sqr}(3-x^2)))/\log(10))$

2- $F=(1/a-2*1)/(d-5)*\log(a)$

3- $Y=\sin(x)^2*\text{sqr}((\exp(4)+\cos(45*3.14/180))/(1-\tan(35*3.14/180)))$

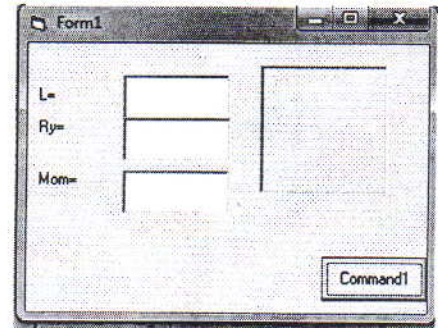
4- $Y=3.14/5*(M/100)^2*(1-(M/7)^{1.63})^{0.53}$

Q1:B)

```
Private Sub Command1_Click()
Dim u, th, w
w = Val(InputBox(""))
th = Val(InputBox(""))
u = Val(InputBox(""))
F = w * Sin(th * 3.14 / 180)
FS = w * Cos(th * 3.14 / 180)
If F < FS Then MsgBox "static"
If F = FS Then MsgBox "Start to move"
If F > FS Then MsgBox "Move"
End Sub
```

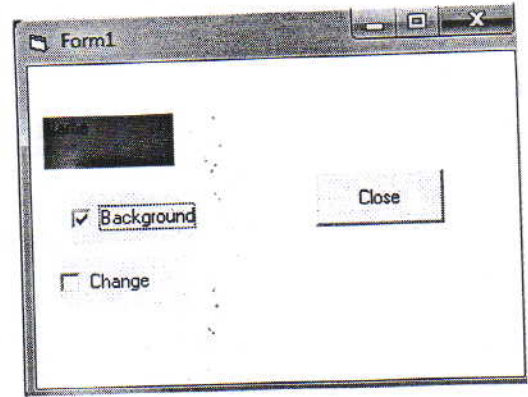
Q2:A)

```
Private Sub Command1_Click()
Dim l, ry, mom
l = Val(Text1.Text)
ry = Val(Text2.Text)
mom = Val(Text3.Text)
p = 2 * mom / l - ry
w = 2 * ry / l - 2 * mom / l ^ 2
Pictuer1.Print "p="; p; "kN"
Pictuer1.Print "W="; w; "kN/m"
End Sub
```

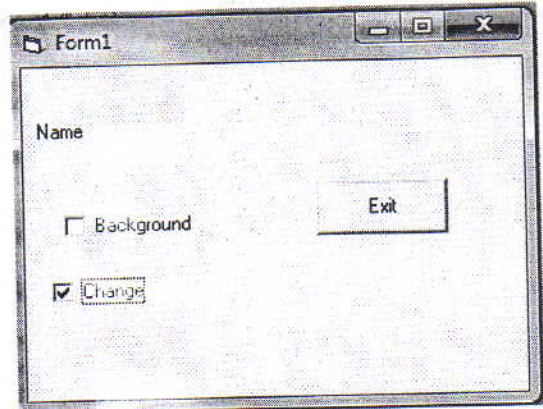


Q2:B)

```
Private Sub Check1_Click()
If Check1.Value = 1 Then
Label1.BackColor = vbRed
Form1.BackColor = vbWhite
Else
Label1.BackColor = QBColor(7) او اي لون(7)
Form1.BackColor = QBColor(7) او اي لون(7)
End If
End Sub
```



```
Private Sub Check2_Click()
If Check2.Value = 1 Then
Command1.Caption = "Exit"
Else
Command1.Caption = "close"
End If
End Sub
```



```
Private Sub Command1_Click()
End
End Sub
```

Q3:)

```
Dim R, I
R = Val(Text1.Text)
If Option1.Value = True Then
I = 3.14 * R ^ 4 / 4
Text2.Text = Str(I)
ElseIf Option2.Value = True Then
I = 3.14 * R ^ 4 / 8
Text2.Text = Str(I)
ElseIf Option3.Value = True Then
I = 3.14 * R ^ 4 / 16
Text2.Text = Str(I)
Else
End If
End Sub
```


Q4:)

```
Private Sub Command1_Click()
Dim X, Y, N, I, J, F
X = Val(inputbo(""))
Y = Val(inputbo(""))
N = Val(inputbo(""))
Sum = X + Y
k = -1
For I = 2 To N
F = 1
For J = 1 To (I - 1) * 2
F = F * J
Next J
Sum = Sum + K*(X + Y ^ ((I - 1) * 3)) / F
k = -k
Next I
Text1.Text = Str(Sum)
End Sub
```

```
Private Sub Command1_Click()
Dim X, Y, N, I, J, F
X = Val(inputbo(""))
Y = Val(inputbo(""))
N = Val(inputbo(""))
Sum = X + Y
k = -1 : A=2 : B=3
For I = 2 To N
F = 1
For J = 1 To A
F = F * J
Next J
Sum = Sum + K*(X + Y ^ (B)) / F
k = -k : A=A+2 : B=B+3
Next I
Text1.Text = Str(Sum)
End Sub
```

Q5:)

```
Private Sub Command1_Click()
Scale (0, 100)-(130, 0)
Line (15, 15)-(115, 85), , B
Line (15, 30)-(30, 70), , B
Line (100, 30)-(115, 70), , B
Circle (30, 50), 9, , 3 / 2 * 3.14, 3.14 / 2
Circle (100, 50), 9, , 3.14 / 2, 3 / 2 * 3.14
Circle (65, 50), 12
Line (65, 15)-(65, 85)
Circle (15, 15), 5, , 0, 3.14 / 2
Circle (15, 85), 5, , 3.14 * 3 / 2, 0
Circle (115, 85), 5, , 3.14, 3.14 * 3 / 2
Circle (115, 15), 5, , 3.14 / 2, 3.14

End Sub
```

