The exam is open book and open notes. You may use your course text book and your notes and handouts for this class.

Problem 1 (4 points). Are the following valid Windows file names?

Yes X_ No "Who is there?" Why or why not? You can not use "?" in a file name.
Yes X_ No "FOUR STAR HOTEL ****" Why or why not? You can not use "*" in a file name.

Problem 2 (2 points). Is "C:\Sales\New York" a Windows file name or a path name?

_____ File name __X_ Path name

Problem 3 (2 points). Describe the contents of the text box after the command button has been clicked:

Private Sub Command	1_Click()
Text1.Text = `	'Hello"
End Sub	
🖻 Form1 📃 🗖 🔀	
Hello	
Command1	

Problem 4 (4 points). Write one or two lines of VB code to carry out the task:

a. Display "E.T. phone home." in a text box Text1.

Text1.Text = "E.T. phone home."

b. Display "Hello" in red letters in text box Text1.

Text1.ForeColor = vbRed Text1.Text = "Hello"

Problem 5 (4 points). Evaluate the following numeric expressions:

a. 1/(2^5) = _1/32 = 0.03125
b. 3*(-2)^5) = _-3*2^5 = -3*32 = -96

Problem 6 (10 points). Are the following names valid Visual Basic variable names?

a. Yes X No.	<u>Name</u> sales.2003
bX_ Yes No.	fOrM_1040
c Yes _X_ No.	expenses?
d Yes _X_ No.	room&board
e. Yes X No.	1040B

Problem 7 (10 points). Evaluate the following numeric expressions where a = 2, b = 3, and c = 4

a.	(a * b) + c	Value:10
b.	(1 + b) * c	Value:16
c.	b ^ (c – a)	Value:9
d.	a * (b + c)	Value:14
e.	$(c - a) ^{b}$	Value:8

Problem 8 (2 points). Write an event procedure [Private Sub Command1_Click()] to calculate and display the value of the following expression in a picture box named "Pic1"

Expression = $15 - 3(2 + 3^4)$

Private Sub Command1_Click()

Expression =
$$15 - 3 * (2 + 3 ^ 4)$$

Picl.Print Expression

End Sub

Problem 9 (8 points). Complete the following table by filling in the value of each variable after each line is executed

	х	У
Private Sub Command_Click()		
x = 2	2	
y = 3 * x		6
x = y + 5	11	
Picture1.Cls		
Picture1.Print x + 4	11	6
y = y + 1		7
End Sub		

Problem 10 (10 points). Complete the following table by filling in the value of each variable after each line is executed

	bal	inter	withDr
<pre>Private Sub Command_Click()</pre>			
bal = 100	100		
inter = 0.05	100	0.05	
withDr = 25	100	0.05	25
bal = bal + inter * bal	105	0.05	25
bal = bal - withDr	80	0.05	25
End Sub			

Problem 11 (8 points). Determine the output displayed in the picture box by the following lines of code

```
a.amount = 10
  Picture1.Print amount - 4
                                        Output: ____6____
b. number = 5
  number = 2 * number
                                        Output: ____10_____
  Picture1.Print number
c.x = 3
  Picture1.Print x ^x; x + 3 * x
                                        Output: ____27_12_
d.n = 2
  Picture1.Print 3 * n
  n = n + n
  Picture1.Print n + n
                                        Output: _____6____
                                        Output: _____8____
```

Problem 12 (4 points). Write an event procedure [Private Sub Command1_Click() ... End Sub], and having one line for each of the following steps (a) - (c). Lines that display data should use the given variable names. The following steps calculate the balance in an account after 10 years when \$100 is deposited in a savings account at 5% interest compounded annually.

- (a) Assign the value 100 to the variable balance.
- (b) Multiply the variable *balance* by 1.05 raised to the 9th power.
- (c) Display the value of the variable *balance* in a picture box named "Pic1"

```
Private Sub Command1_Click()
```

```
Balance = 100
Balance = Balance * (1.05 ^ 9)
Pic1.Print Balance
```

End Sub

Problem 13 (4 points). Suppose a ball is thrown straight up in the air with an initial velocity of 50 feet per second and an initial height of 5 feet. How high will the ball be after 3 seconds? (Note: The height after *t* seconds is given by the expression $h = -16t^2 + v_0t + h_0$.) Write an event procedure [Private Sub Command1_Click() ... End Sub] to solve the problem and display the answer in a picture box named "Pic1".

```
Private Sub Command1_Click()
T = 3
V0 = 50
H0 = 5
H = -16 * T * T + V0 * T + H0
Pic1.Print H
```

End Sub

Problem 14 (4 points). Assume that the file DATA.TXT (shown to the right of the code) has been opened for input with reference number 1. Determine the output displayed in the picture box by the lines of code.

Dim num As Integer, strng As String Input #1, num, strng Picturel.Print num; strng Close #1 Open "DATA.TXT" For Input As #1 Input #1, num, strng Picturel.Print num; strng

Output: 4 calling birds 4 calling birds

Problem 15 (8 points). Determine if the following conditions are true or false. Assume a = 2 and b = 3

		<u>Condition</u>
aX_ Tru	e False	a (5 - 2) > 7
bX_ Tru	e False	(a < b) Or $(b < a)$
c True	e _F_ False	Not $((a < b) And (a < (b + a))$
dT_ Tru	e False	((a = b) Or Not (b < a)) And ((a < b) Or (b = a + 1))

Problem 16 (2 points). Determine the output displayed in the picture box when the command button is clicked.

```
Private Sub Command1_Click()
    Dim a As Single, b As Single, c As Single
    a = 2
    b = 3
    c = 5
    If a * b < c Then
        b = 7
    Else
        b = c * a
    End if
    Picture1.Print b
End Sub
Value Displayed: _____10_____</pre>
```

Problem 17 (14 points). The following flowchart finds the greatest common divisor (the largest integer that divides both) of the two positive integers input by the user. Write a Visual Basic program that corresponds to the flowchart.

