



Final Exam

Computer Programming

Time Allowed: 2 Hrs.
CIE, BME Students.
Total Marks: 50
2017 - 2018



يسمح باستخدام القلم الرصاص (شروط وضوح الخط).

Collect **50** marks.

حاول لجميع **0** درجة من الاسئلة التالية .

(1) **Write** a program to **Enter** the student degrees in any number of subjects, then prints his grade. The user is not allowed to enter wrong degree also, no grade if the student failed in any subject. (8 marks)

(2) **Using for loop**, write a program to:

- Calculate X^Y
- Calculate the factorial of a number $N!$
- Enter the elements of $A(10)$, then calculate the sum of elements. (12 marks)

(3) **Write a function** to accept the worker type, work hours, and absence days, then returns his net salary using the following table. (8 marks)

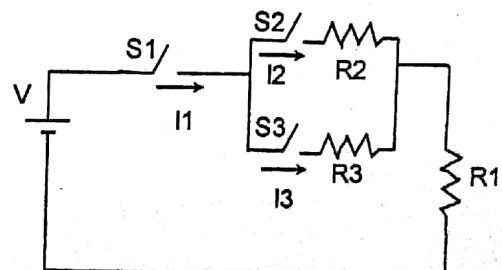
Type	Hour Price	Tax	Over	Money per absence day
1	10 \$	2%	100 \$	10 \$
2,3	20 \$	5%	150 \$	10 \$
4	40 \$	7%	200 \$	20 \$
5	50 \$	10%	250 \$	30 \$

(4) **Calculate** the final price of a TV according its type (colored or not) and size after applying a discount and adding a transportation cost **تكاليف النقل** as shown in the next table. (8 marks)

Type	Size	Discount	Transportation cost
1	$20 > \text{size}$	3%	10 \$
	$20 \leq \text{size} < 30$	5%	15 \$
	$30 \leq \text{size}$	7%	20 \$
2	$20 > \text{size}$	10%	22 \$
	$20 \leq \text{size} < 30$	12%	25 \$
	$30 \leq \text{size}$	15%	40 \$

(5) **Write** the code for the following simulator, you should enter the values of R_1 , R_2 , R_3 , V , and the state of the switches S_1 , S_2 , S_3 , then show the values of the currents I_1 , I_2 , and I_3 .

(8 marks)



اقلب الصفحة

(6) Using Select Case, write a program for a simple calculator that performs the basic arithmetic operations (+, -, *, /). Note: the division by zero is not allowed.

(6 marks)

(7) Write the code for the following application that represents a simple calculator

(5 marks)

The screenshot shows a window titled with a close button (X). Inside the window, there are three input fields labeled "First No.", "Second No.", and "Result". Below these fields are four buttons: "+", "-", "*", and "/". At the bottom of the window are two buttons labeled "Clear" and "Close".

(8) Write the code for the following application that represents a simple converter.

(5 marks)

The screenshot shows a window titled with a close button (X). Inside the window, there are four input fields labeled "CM", "Inches", "Yards", and "Meters". Below these fields are three buttons labeled "Convert", "Clear", and "Close".

----- End of Questions -----

With Best Wishes

Prof. Dr: Ahmed Saleh

Plz, send feedback about the exam to:

aisaleh@yahoo.com

1)

input

out put

i d n
↓ ↓ ↓
الدرجة عدد التكرار
integer single integer

sum per grd
↓ ↓ ↓
المجموع النتيجة المعدل
single single string

module module 1

sub main (:

Dim d, sum, per as single, grd as string

Dim i, n as integer

n = input box ("inter number of subjects

sum = 0

For i = 1 to n step 1

AA: d = inputBox("Enter the degree" & i)

if d < 50 then

msg box ("student failed in degree" & i)

Exit sub

if d > 100 then

msg Box ("wrong degree")

go to AA

sum = sum + d

next

per = sum / n

if per >= 50 and per < 65 then grd = ("pass")

if per >= 65 and per < 75 then ~~grd~~ = ("good")

if per >= 75 and per < 85 then grd = ("very good")

if per >= 85 and per <= 100 then grd = ("excellant")

msg Box ("grade is" & grd)

End sub

End module

2) a)

in put			out put
x	y	i	res
↓	↓	↓	↓
single	integer		single
↓	↓	↓	↓
عدد	عدد	عدد	النتيجة
module module 1			
sub main()			

Dim x, y, res as single, i as integer

x = InputBox ("Enter the number")

y = InputBox ("Enter the Power")

res = 1

For i = 1 to y

res = res * x

next

msgBox ("result is " & res)

End sub

End module

b)

input

out put

i
↓
integer
↓
العدد

num
↓
integer
↓
الرقم

fact

↓
الضرب

↓
integer

module module 1

Sub main() :

Dim i, num, fact as integer

num = InputBox ("Enter the number")

fact = 1

for i = 1 to num

fact = fact * num

num = num - 1

next

MsgBox ("factorial is" & fact)

End sub

End module

C)

input

out put

i

A(i)

sum

↓
integer

↓
integer

↓
integer

integer

integer

integer

Module module 1

sub main()

Dim i, sum, A() as integer

sum = 0

for i = 0 to 9

A(i) = inputBox("Enter element" & i)

sum = sum + A(i)

next

msgBox("sum is" & sum)

End sub

End module

3)

input			out put
type	hours	abs	sal
النوع	الساعات	الأيام	المرتبة
integer	single	integer	single

module module 1

sub main()

Dim type, abs as integer, sal, hours as single

typ = InputBox("Enter worker type")

abs = InputBox("Enter abs days")

hours = InputBox("Enter work hours")

sal = net(typ, abs, hours)

MsgBox("Salary is" & sal)

End sub

Function net(ByVal x as integer, ByVal y as integer, ByVal z as single)

Dim w as single

if x = 1 then $w = z * 10 * 0.98 + 100 - 10 * y$

if x = 2 or x = 3 then $w = z * 20 * 0.95 + 150 - 10 * y$

if x = 4 then $w = z * 40 * 0.93 + 200 - 20 * y$

if x = 5 then $w = z * 50 * 0.9 + 250 - 30 * y$

return (w)

End Function

End module

4)

input			output
type	size	price	final price
النوع	الحجم	السعر	السعر النهائي
integer	integer	single	single

module module 1

Sub main

Dim type, size as integer, price, final price as single

type = InputBox("Enter TV type")

size = InputBox("Enter TV size")

price = InputBox("Enter TV price")

if type = 1 then

if size < 20 then final_price = price * 0.97 + 10

if size >= 20 and size < 30 then final_price = price * 0.95 + 20

if size >= 30 then final_price = price * 0.93 + 20

End if

if type = 2 then

if size < 20 then final_price = price * 0.9 + 22

if size >= 20 and size < 30 then final_price = price * 0.88 + 22

if size >= 30 then final_price = price * 0.85 + 40

End if

MsgBox("Final Price is" & final_price)

End sub

End module

5)

input

out put

R_1 R_2 R_3 V S_1 S_2 S_3
↓ ↓ ↓ ↓ ↓ ↓
القنوات - الاتجاهات - المقابس
single single Boolean

i_1 i_2 i_3 R_T
↓ ↓ ↓
التيارات - المقاومة
single single

module module 1

sub main()

Dim R_1 , R_2 , R_3 , V , i_1 , i_2 , i_3 , R_T as single

Dim S_1 , S_2 , S_3 as Boolean

R_1 = input Box ("Enter R_1 ")

R_2 = input Box ("Enter R_2 ")

R_3 = input Box ("Enter R_3 ")

V = input Box ("Enter V ")

S_1 = input Box ("Enter S_1 ")

S_2 = input Box ("Enter S_2 ")

S_3 = input Box ("Enter S_3 ")

if $s_1 = \text{false}$ then

$$i_1 = 0$$

$$i_2 = 0$$

$$i_3 = 0$$

else

if $s_2 = \text{false}$ then

if $s_3 = \text{false}$ then

$$R_T = R_1 + (R_2 * R_3 / (R_2 + R_3))$$

$$i_1 = V / R_T$$

$$i_2 = 0$$

$$i_3 = 0$$

End if

else

$$R_T = R_1 * (R_2 * R_3 / (R_2 + R_3))$$

msg Box ("i1 = " & i1)

$$i_1 = V / R_T$$

msg Box ("i2 = " & i2)

$$i_2 = 0$$

msg Box ("i3 = " & i3)

$$i_3 = i_1$$

End sub

End if

End module

else

if $s_3 = \text{false}$ then

$$R_T = R_1 + (R_2 * R_3 / (R_2 + R_3))$$

$$i_1 = V / R_T$$

$$i_2 = i_1$$

$$i_3 = 0$$

else

$$R_T = R_1 + (R_2 * R_3 / (R_2 + R_3))$$

$$i_1 = V / R_T$$

$$i_2 = V / \left(\frac{R_3}{R_2 + R_3} \right)$$

$$i_3 = i_1 - i_2$$

End if

6)

input			output
x	y	op	res
1 العدد	2 العدد	العملية	النتيجة
integer	integer	char	single

Module module 1

sub main()

Dim x, y as integer, res as single

Dim op as char

x = InputBox("Enter first number")

y = InputBox("Enter second number")

xx: op = InputBox("Enter operation symbol")

select case op

case "+"

res = x + y

case "-"

res = x - y

case "*" /

res = x * y

case "

if y = 0 then

msgBox("division by zero")

Exit sub

else

res = x / y

End if

case else

msgBox("wrong operation")

go to xx

End select

msgBox("result is" & res)

End sub

End module

7)

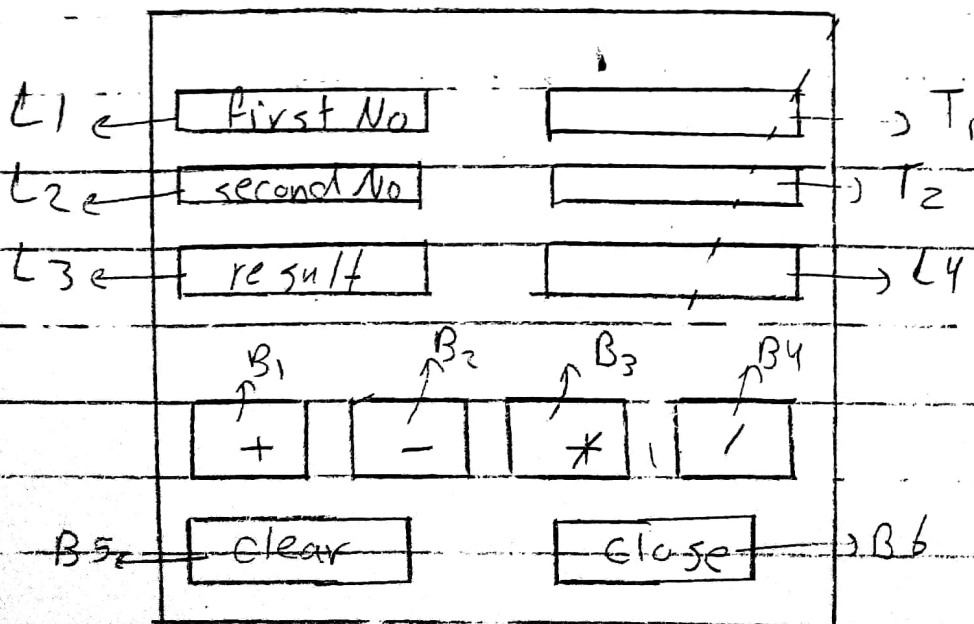
we need :-

4 Label

2 text Box

6 Button

Property	name	text
Label 1	L1	"First No."
Label 2	L2	"second No."
Label 3	L3	"result"
Label 4	L4	" "
text Box 1	T1	" "
text Box 2	T2	" "
Button 1	B1	" + "
Button 2	B2	" - "
Button 3	B3	" * "
Button 4	B4	" / "
Button 5	B5	"clear"
Button 6	B6	"close"



```
sub B1_click()
```

```
L4.text = val(T1.text) + val(T2.text)
```

```
End sub
```

```
sub B2_click()
```

```
L4.text = val(T1.text) - val(T2.text)
```

```
End sub
```

```
sub B3_click()
```

```
L4.text = val(T1.text) * val(T2.text)
```

```
sub B4_click()
```

```
if val(T2.text) = 0 then
```

```
msgBox ("division by zero")
```

```
else
```

```
L4.text = val(T1.text) / val(T2.text)
```

```
endif
```

```
End sub
```

```
sub B5_click()
```

```
T1.text = " "
```

```
T2.text = " "
```

```
L4.text = " "
```

```
End sub
```

```
sub B6_click()
```

```
End
```

```
End sub
```

8)

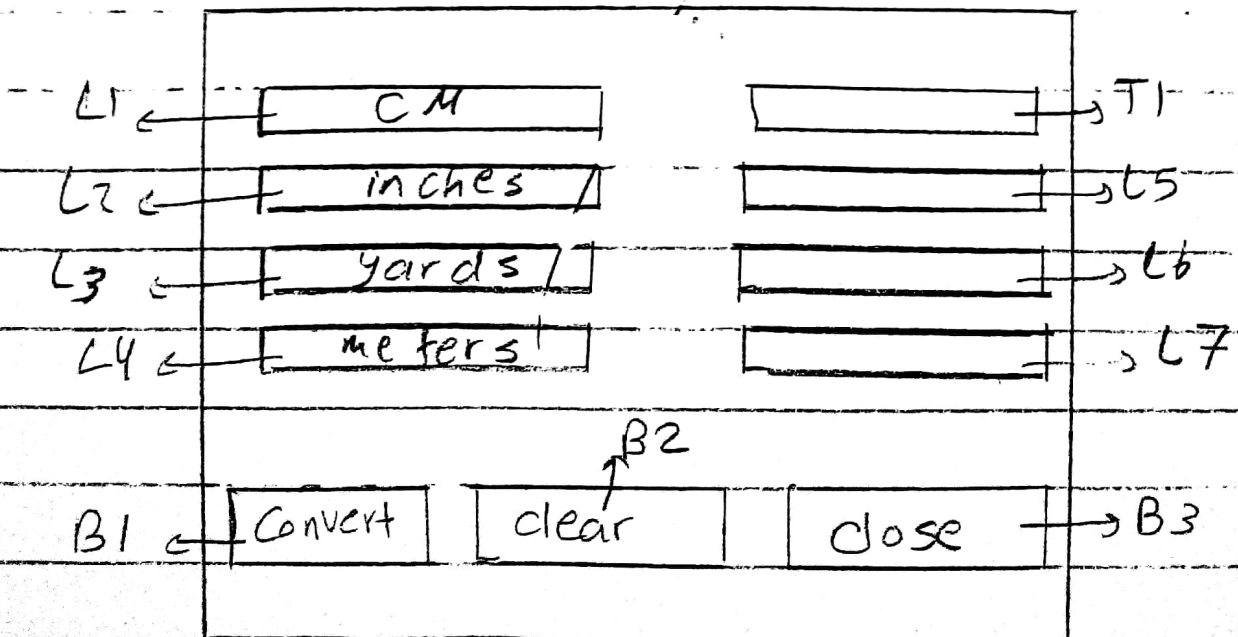
we need -

7 Label

1 textBox

3 Button

property	name	text
Label1	L1	cm
Label2	L2	inches
Label3	L3	yards
Label4	L4	meters
Label5	L5	" "
Label6	L6	" "
Label7	L7	" "
textBox1	T1	" "
Button1	B1	convert
Button2	B2	clear
Button3	B3	close



sub B1_click()

Dim x as single → if T1.text = "" then

x = val (T1.text) msg Box("missing data")

L5.text = x / 2.4 End if

L6.text = x / 9.1

L7.text = x / 100

End sub

sub B2_click()

T1.text = ""

L5.text = ""

L6.text = ""

L7.text = ""

End sub

sub B3_click()

End

End sub