



*

*

I

II

III

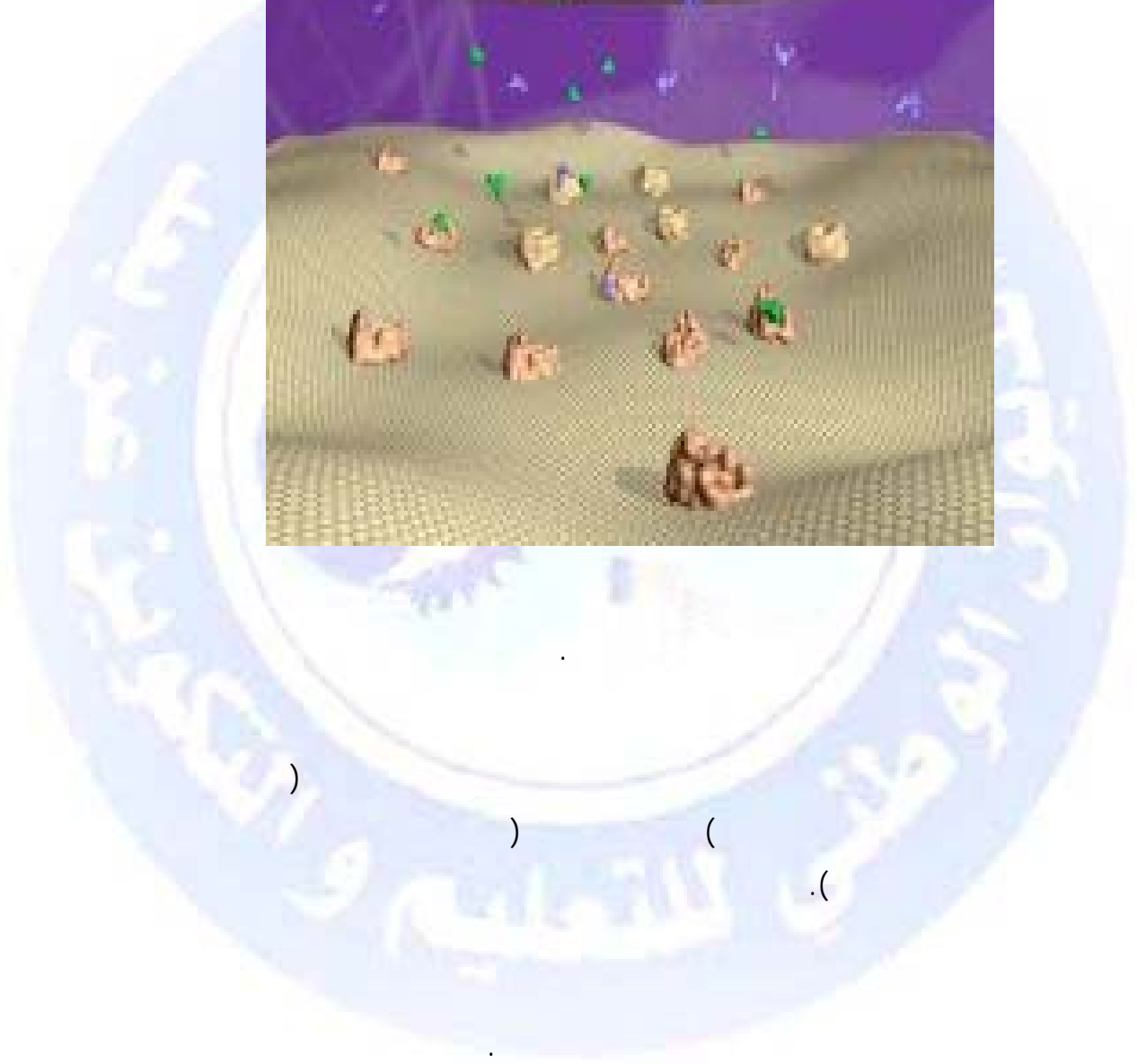
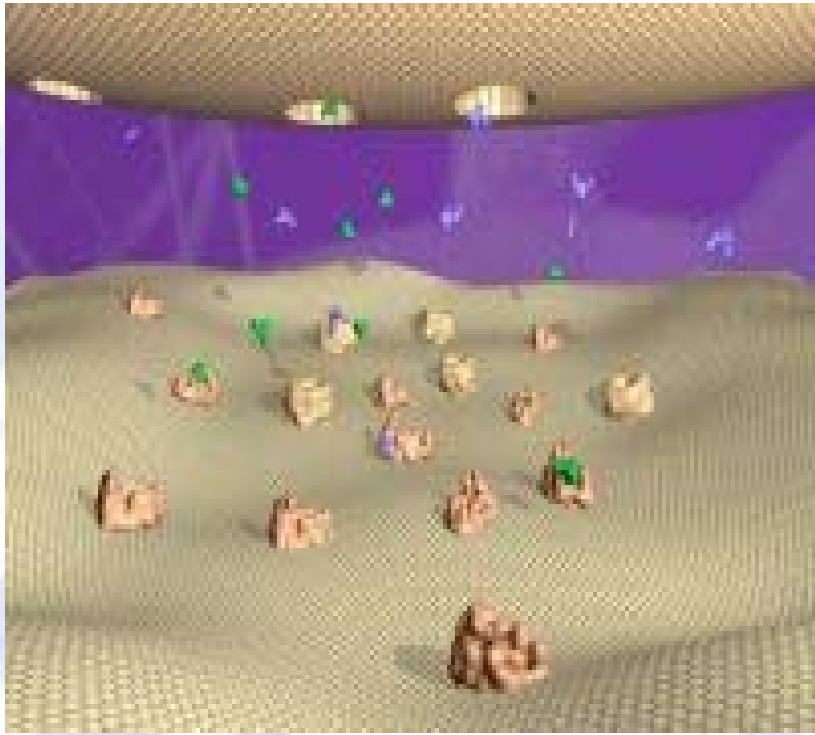
IV

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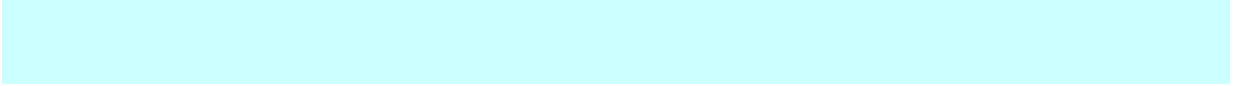
)

)

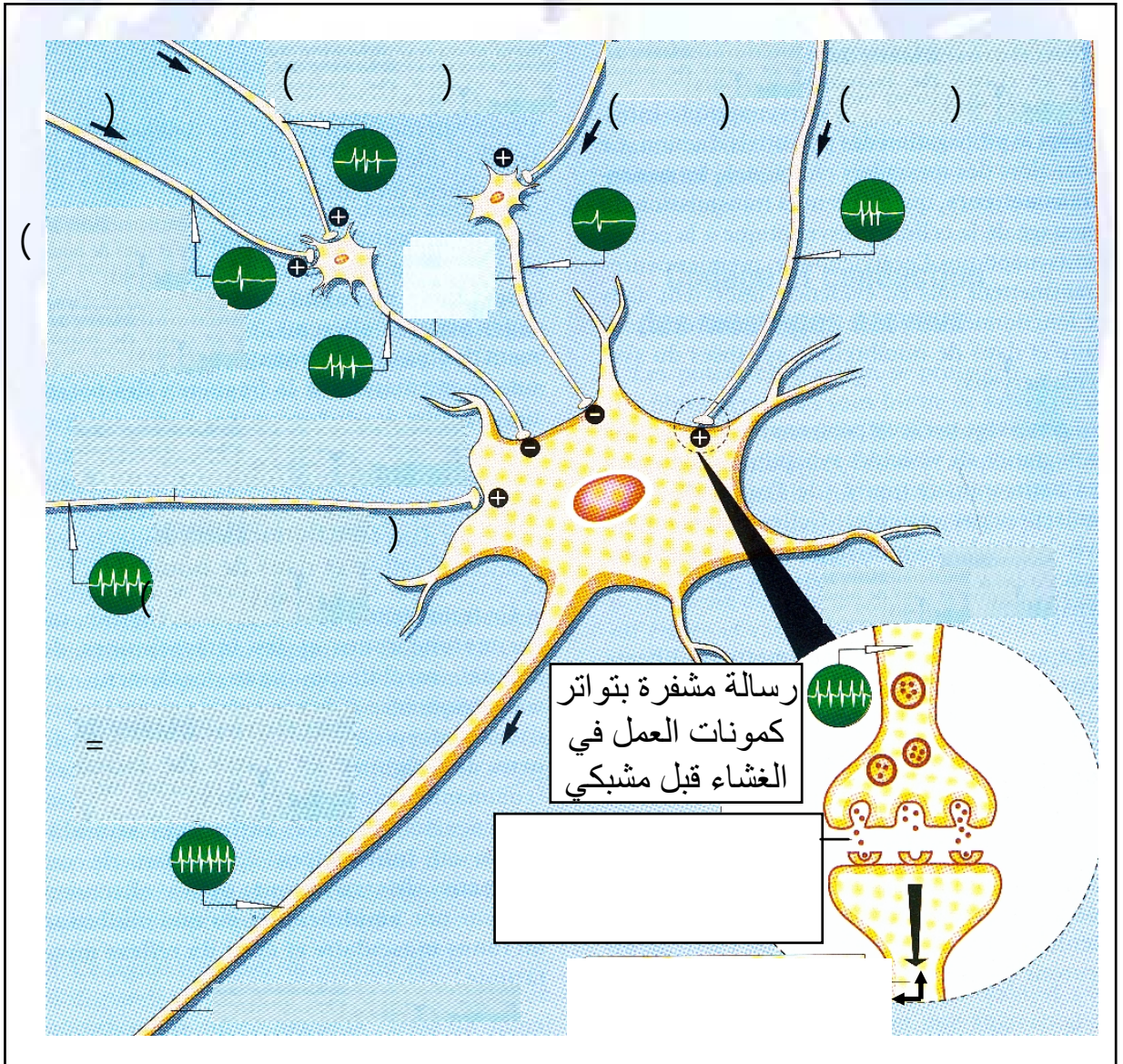
(

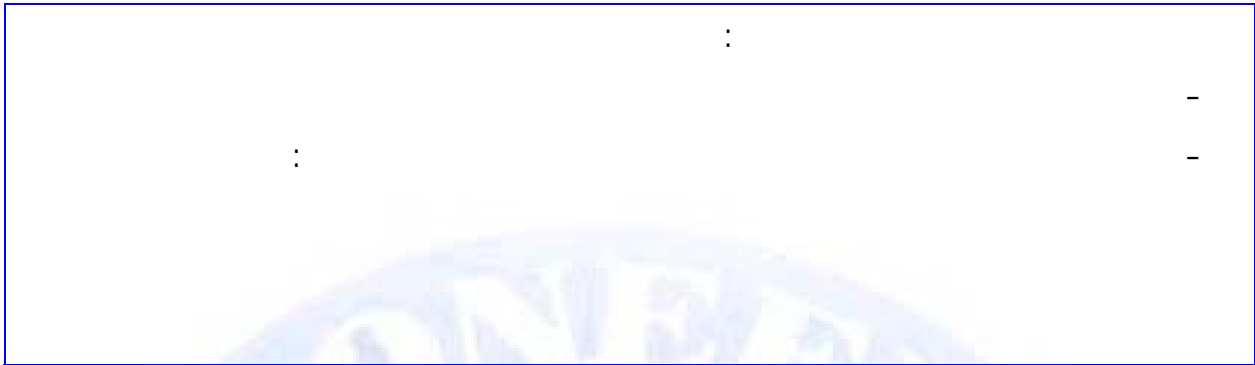
.(

:



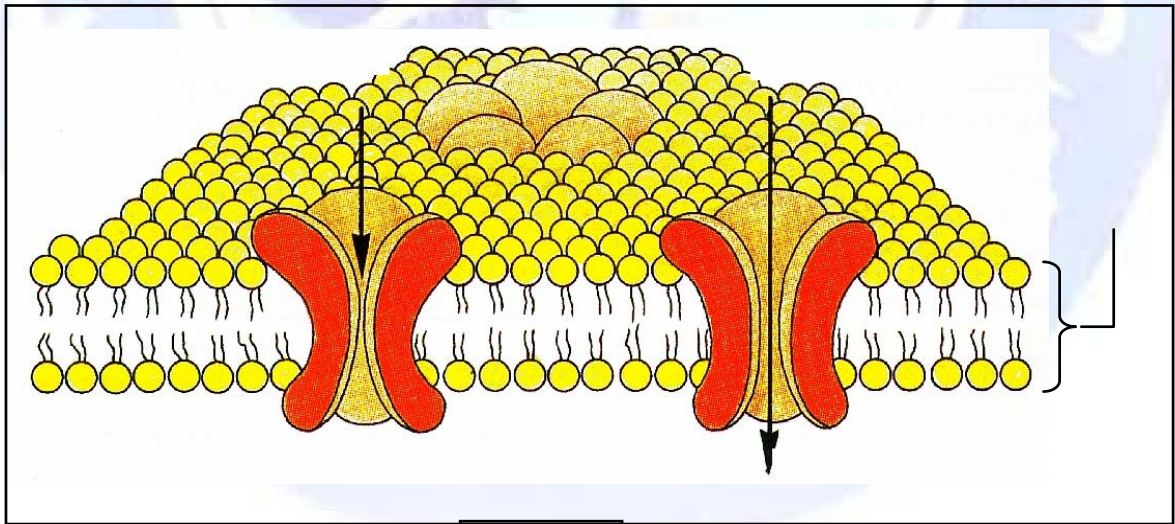
:





I

(1)



1

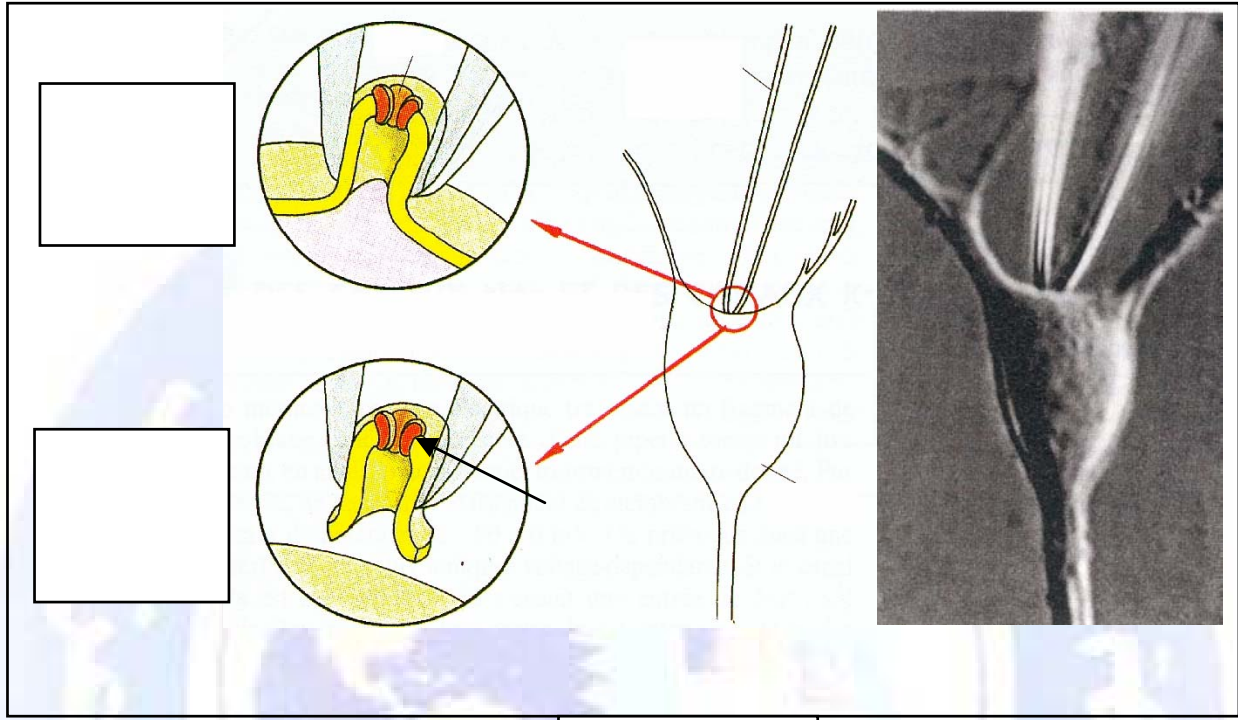
:1

) Patch – clamp

.(

(2)

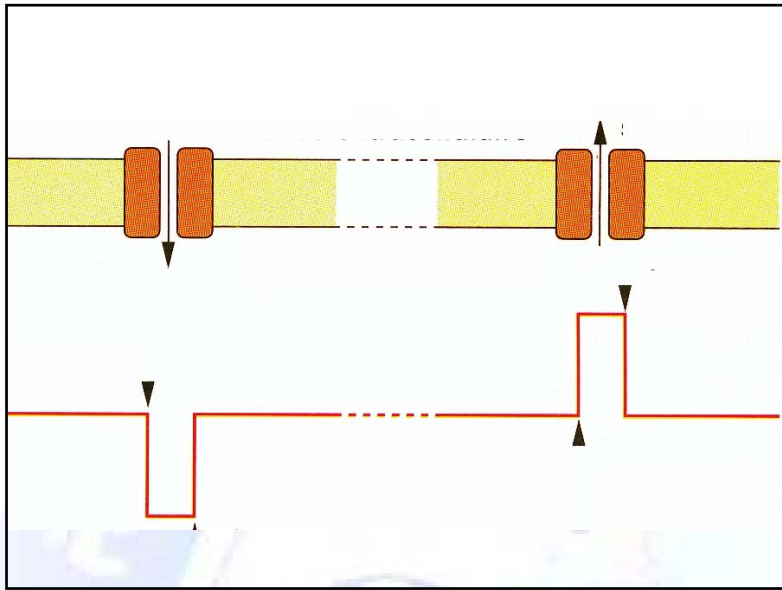
: *



2

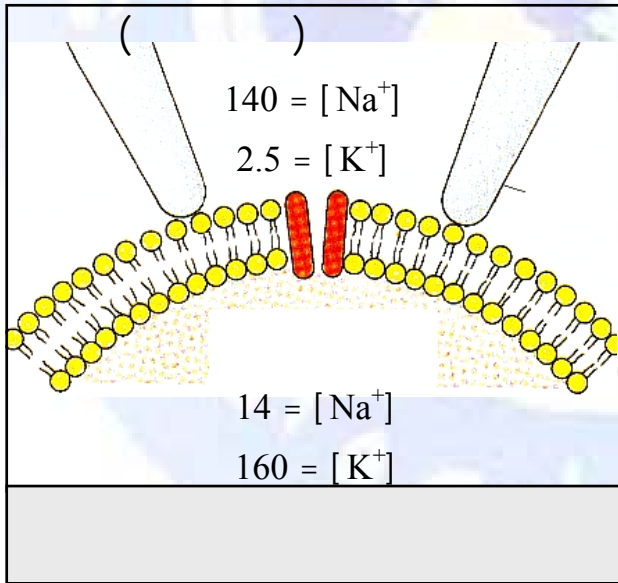
() () (Patch) (2) ()

(3)

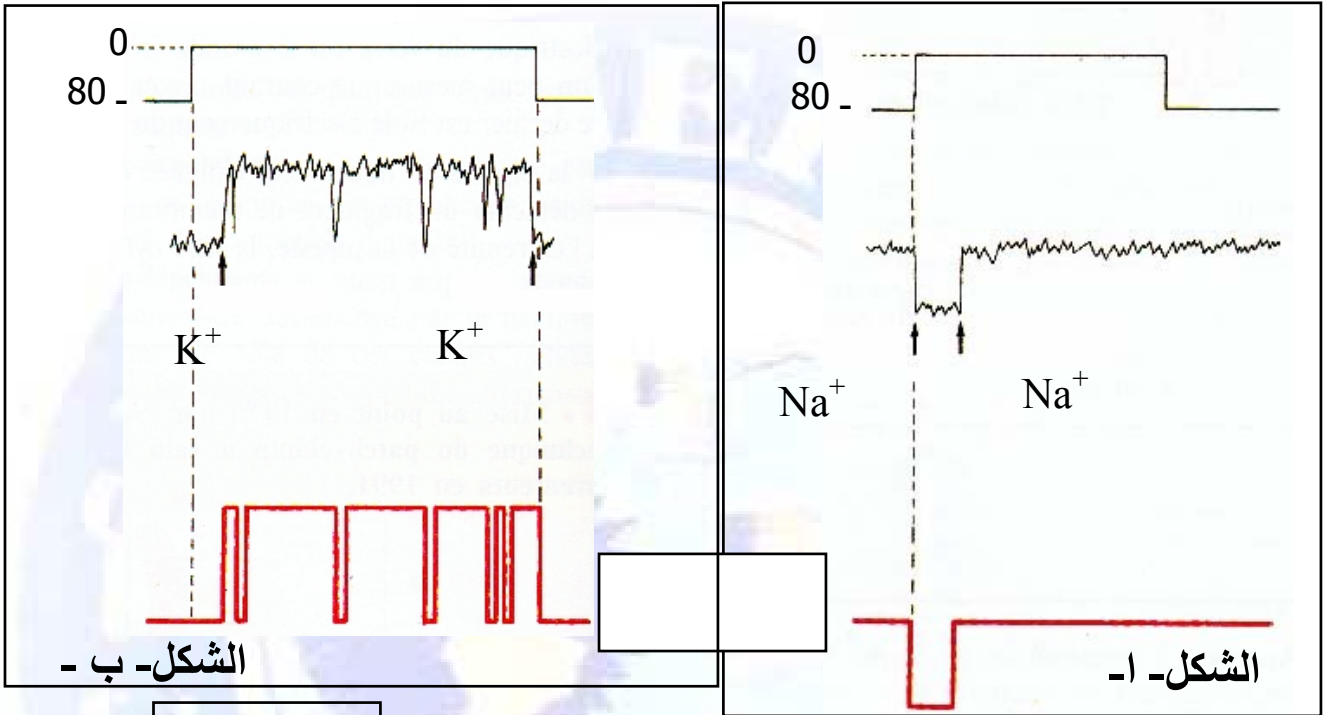


3

0 80 -

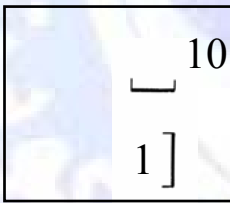


(4)



الشكل - ب -

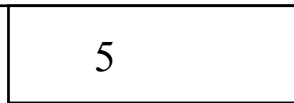
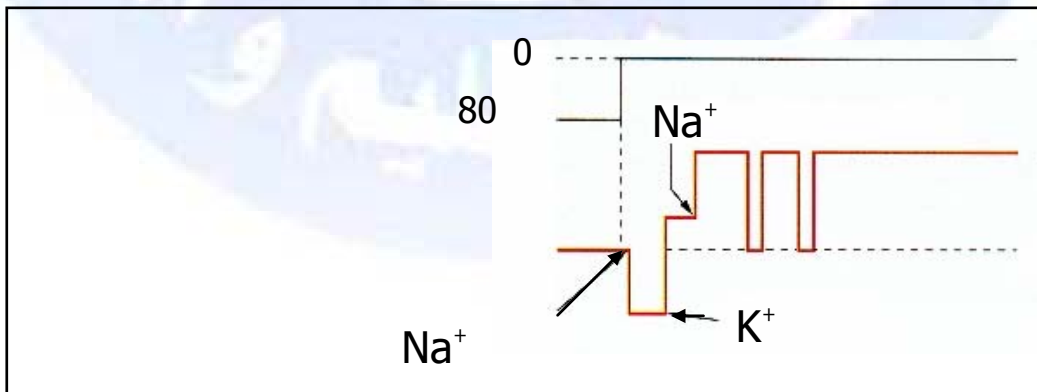
الشكل - ا -



Na^+

(5)

K^+



(4)

()

1

(5) K^+ Na^+ 2

[] 3

4

◀ :

1

(0 =) : ()

0.7=) (1)

() Na^+ (

() Na^+

() Na^+

:()

7

K^+

2

() :

Na^+

K^+

Na^+

K^+

:" "

3

4

: 2

) - α :

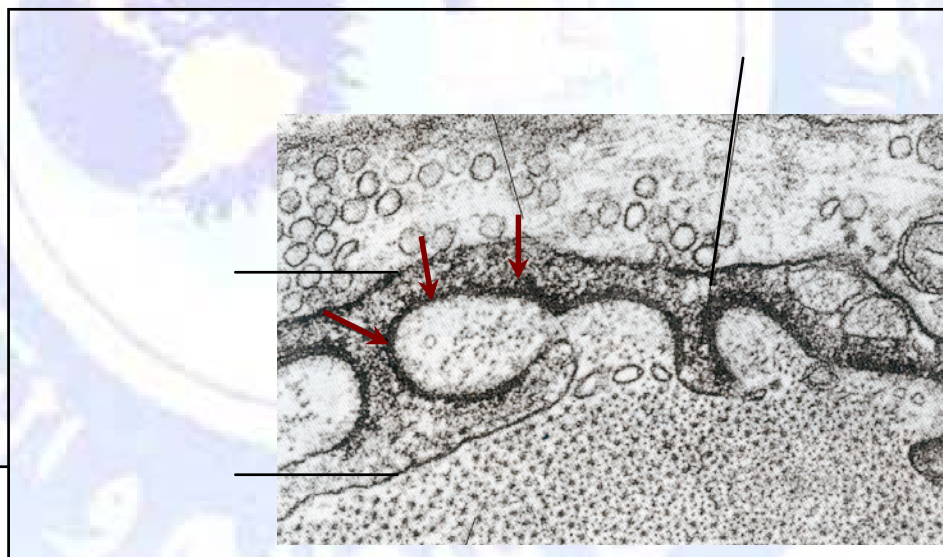
: 1 *
(

- α

()
(6) *

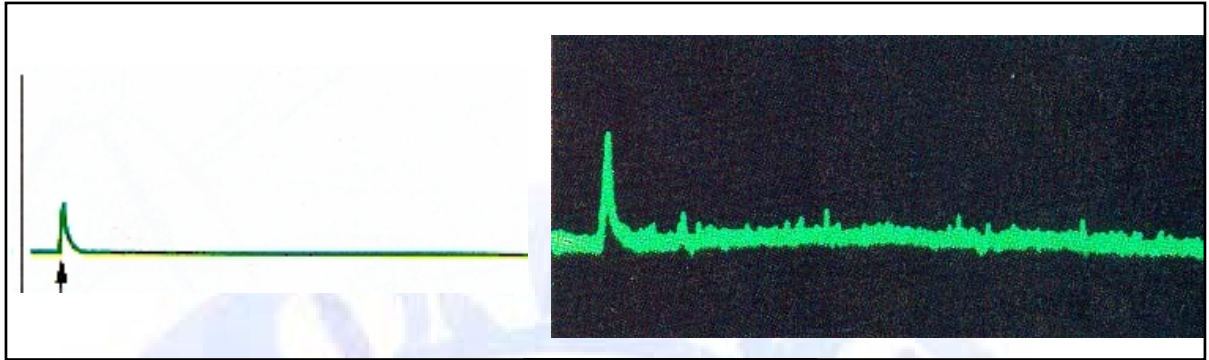
)

(



6

(7) : 2 *
- α



7

*) 3 :
 :
 :
 ()
 (Anti - récepteurs)
 ()
 (8)



8

(1) (2) .
 (1) (3)
 1
 2
 3

: ◀

() : 1

(2)

(6) 2

(8)

() : 3



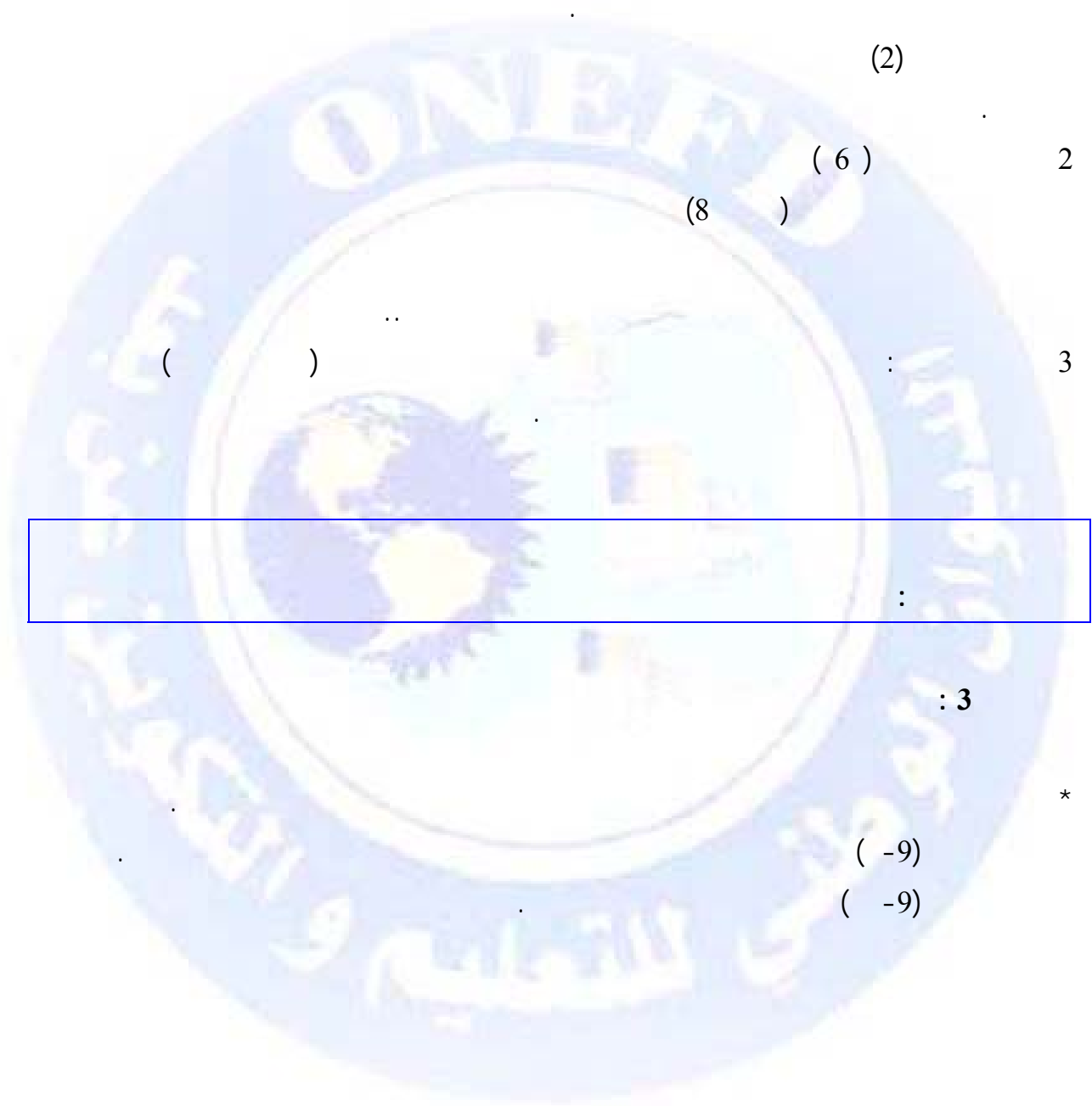
:

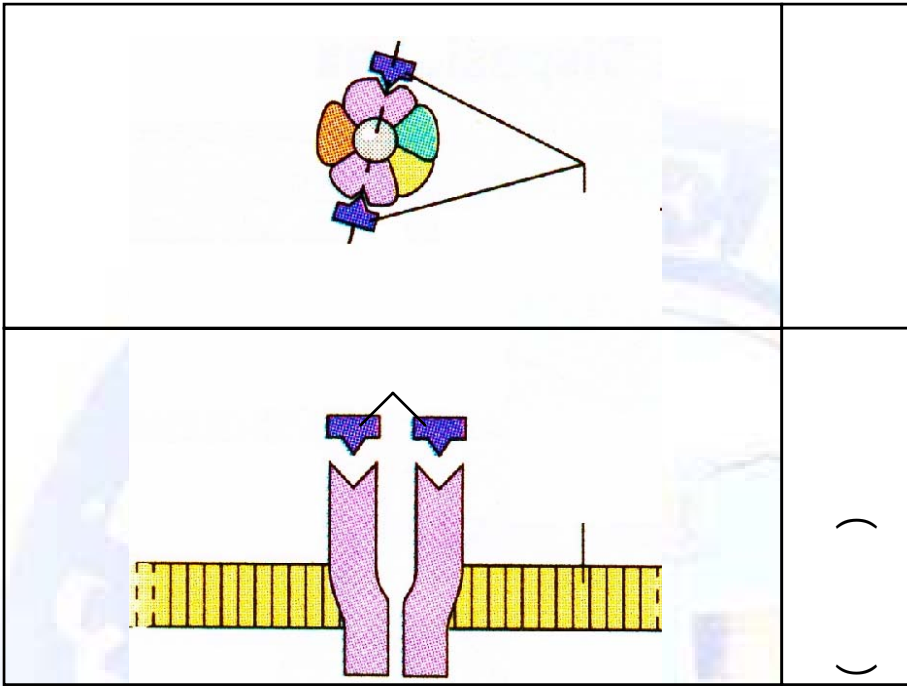
: 3

*

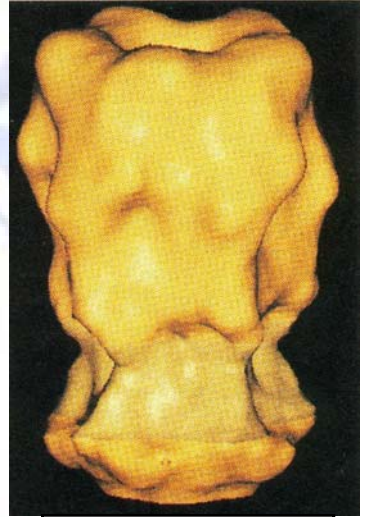
(-9)

(-9)





(-9)



(-9)

.(9)

)

1

2

.(

:

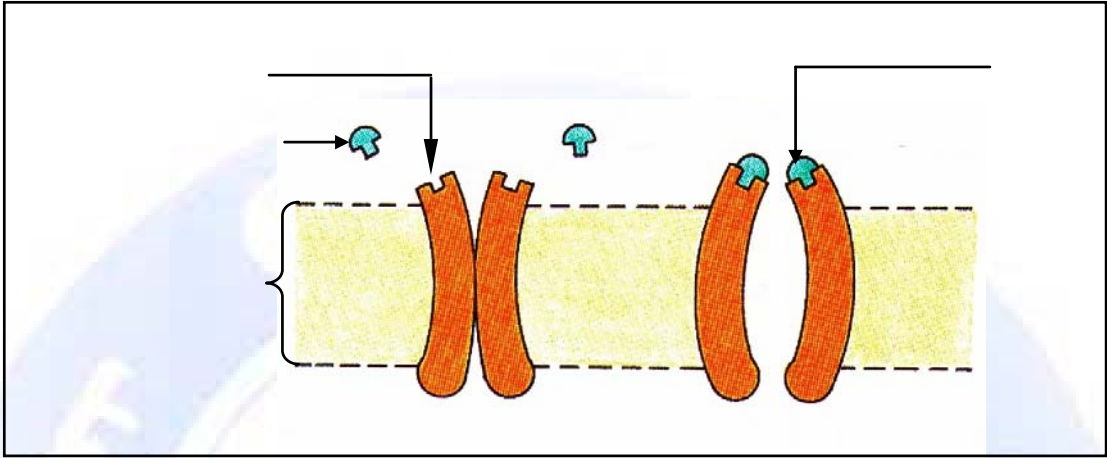


5

:

1

()

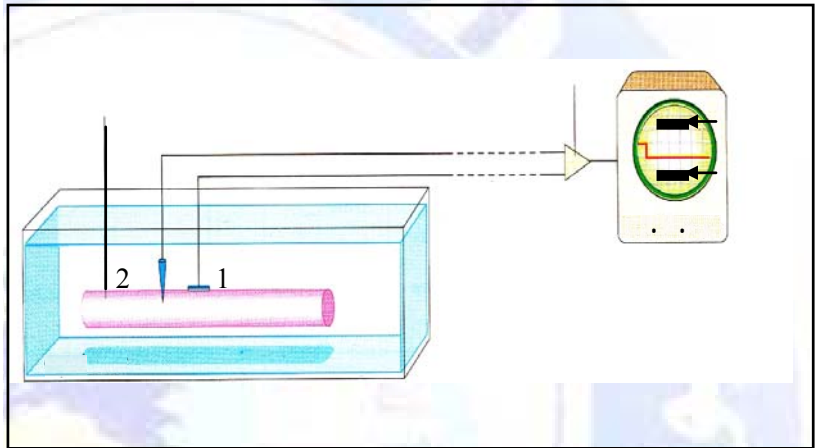


III

:
(10)

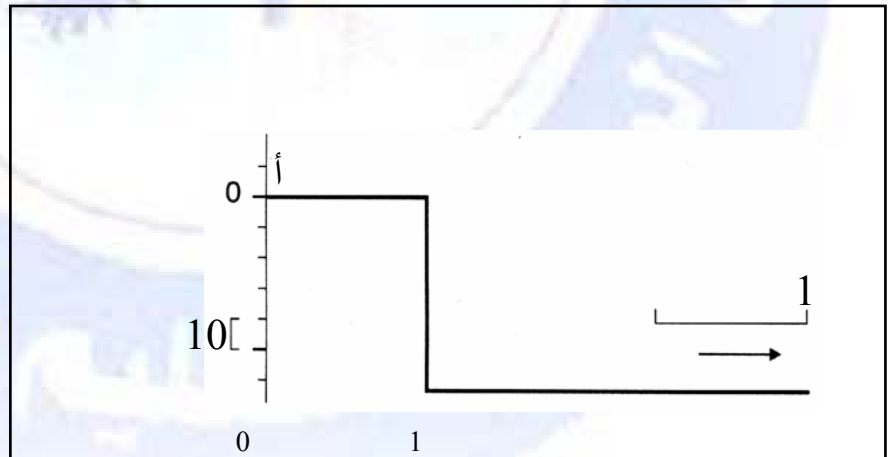
. (10)

:2 1
:
:
1
:
2



10

2 1 :0
1 :1
2



10

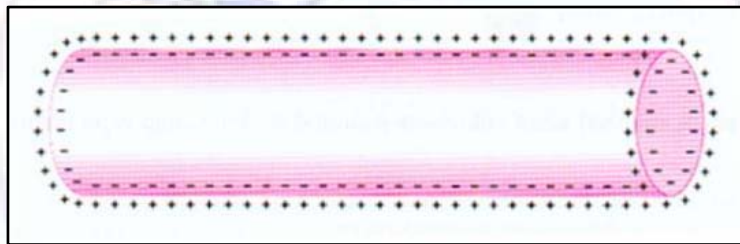
1
2

: ◀

1 (0 =) : 1
1 0 2

(60) (1) 1
(2)

(+) : 2
() :



(11)

Cl^-	K^+	Na^+	(1^- .)
40	410	49	
560	22	440	

11

(11)

:5

:

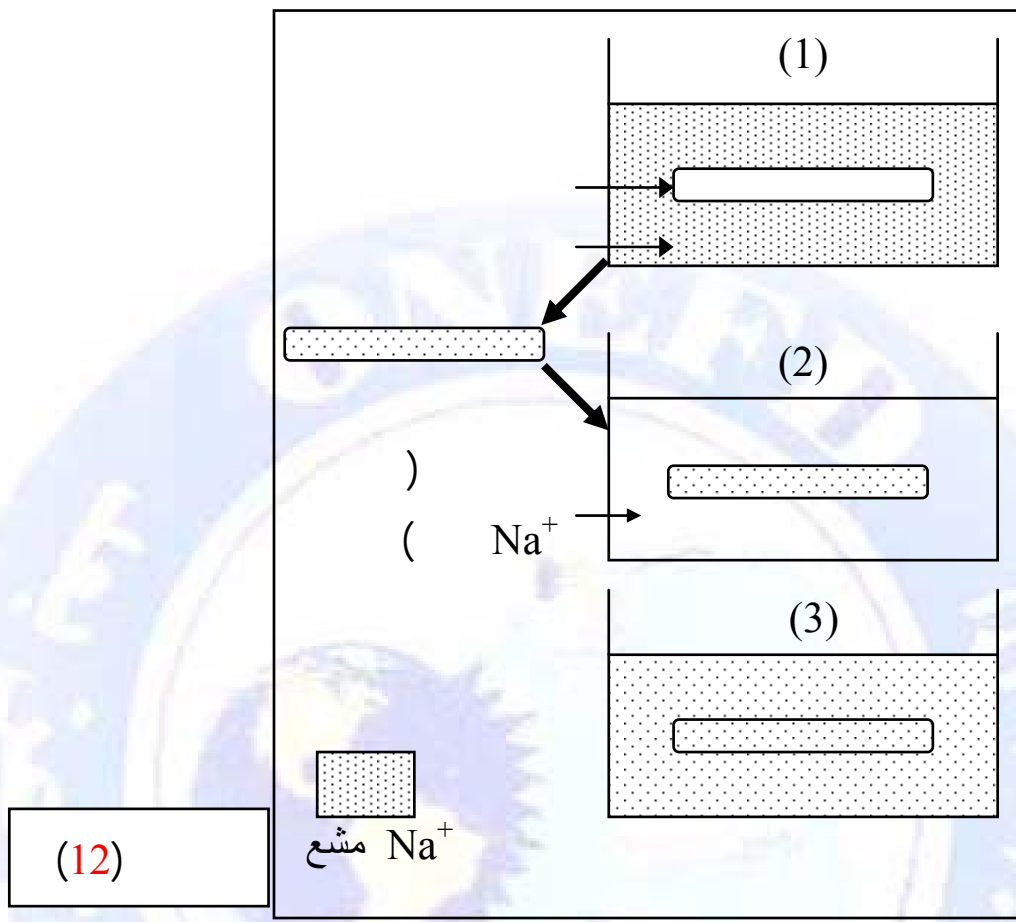
Na^+

:1

*

.(12)

(3 2 1)



K⁺

Na⁺

. Na⁺

:2

*

() DNP:

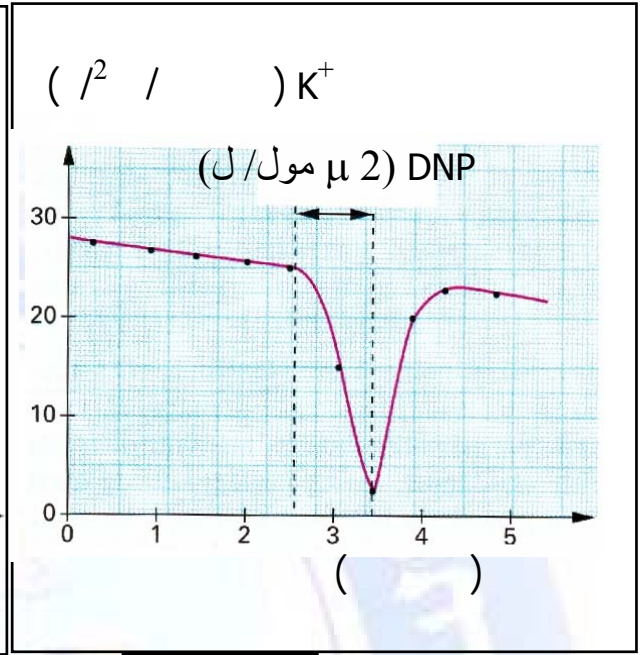
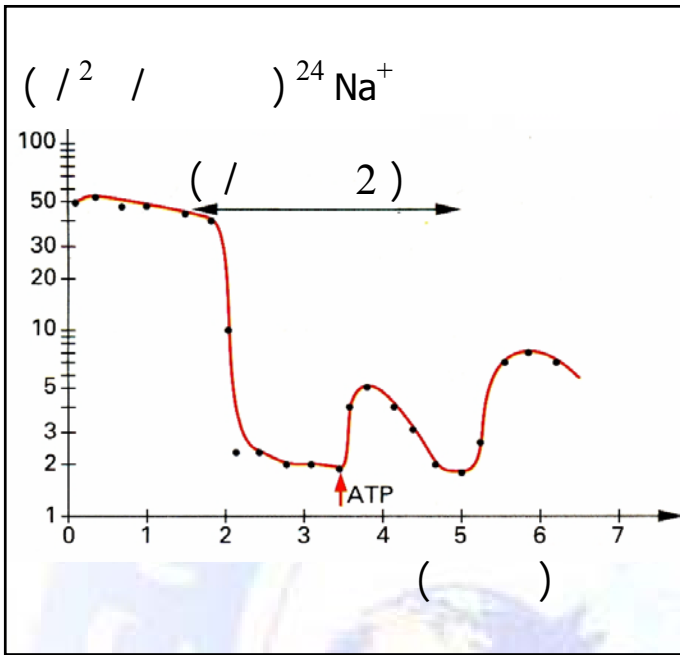
ATP

1

(Cyanure)

.(13)

() ()

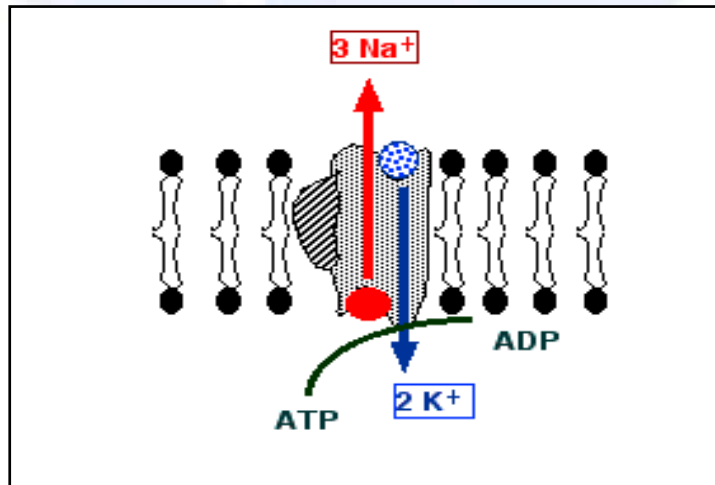


()

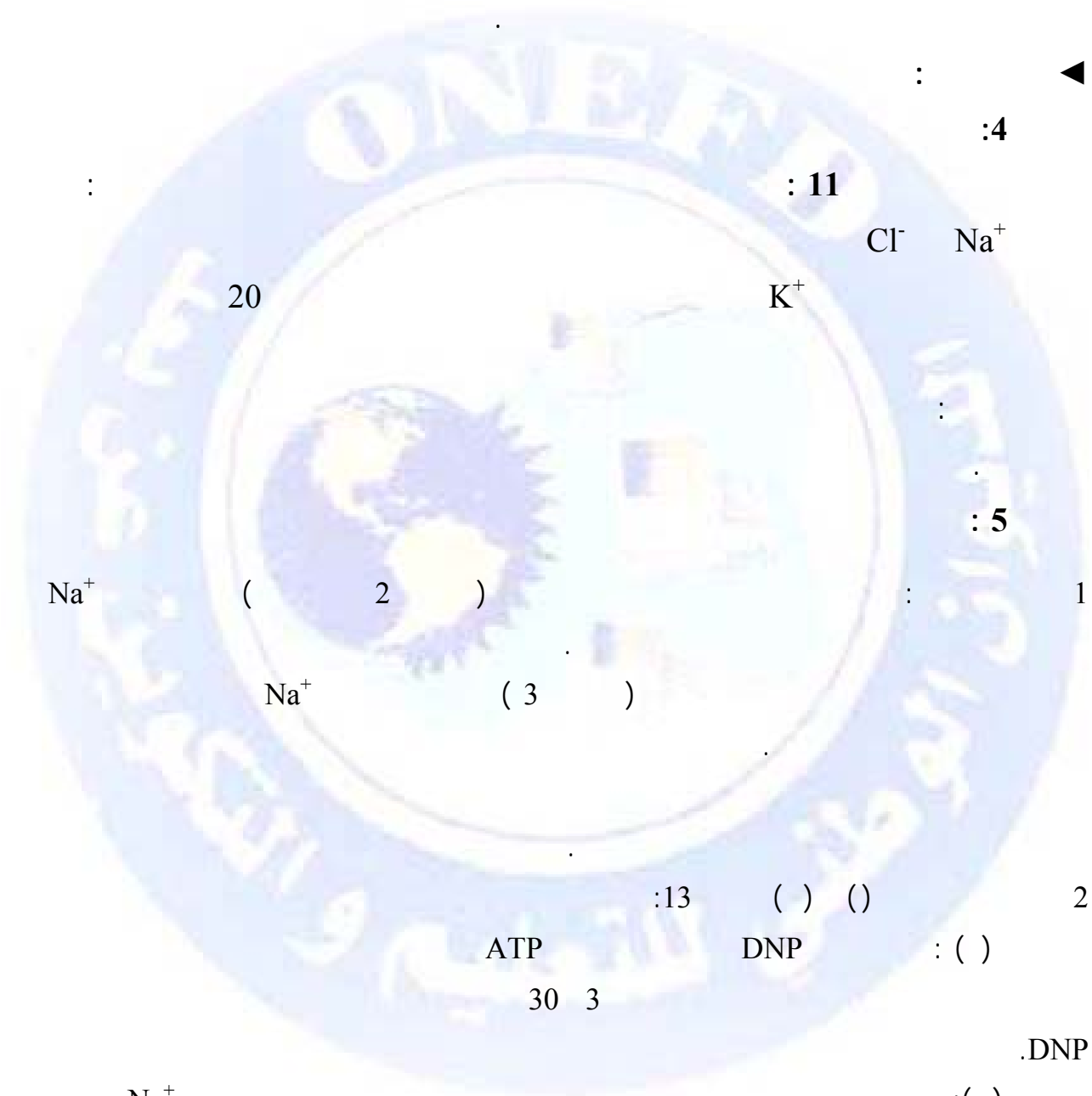
13

()

- () DNP 1
- (12) 1
- () () 2
- K⁺ Na⁺
- (2 1) 3
- " " 4
- 5



: 6



: 4 ◀

: 4

: 11

Cl⁻ Na⁺

20

K⁺

:

: 5

Na⁺

(2)

:

1

Na⁺ (3)

:13 () () 2

ATP DNP : ()

30 3

.DNP

Na⁺

: ()

4 30 3

ATP

Na⁺

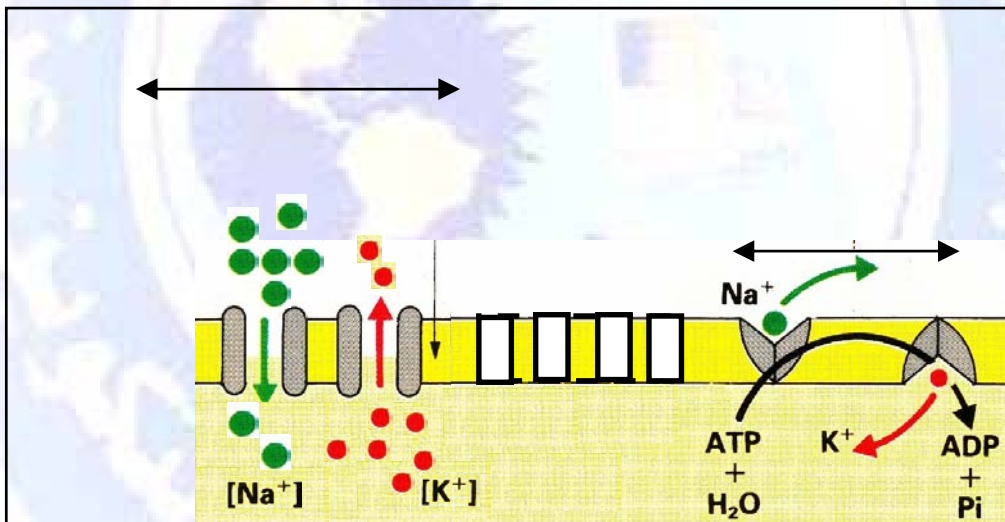
:

3

K⁺

()

3) () : " " 4
: " " 5
: 6





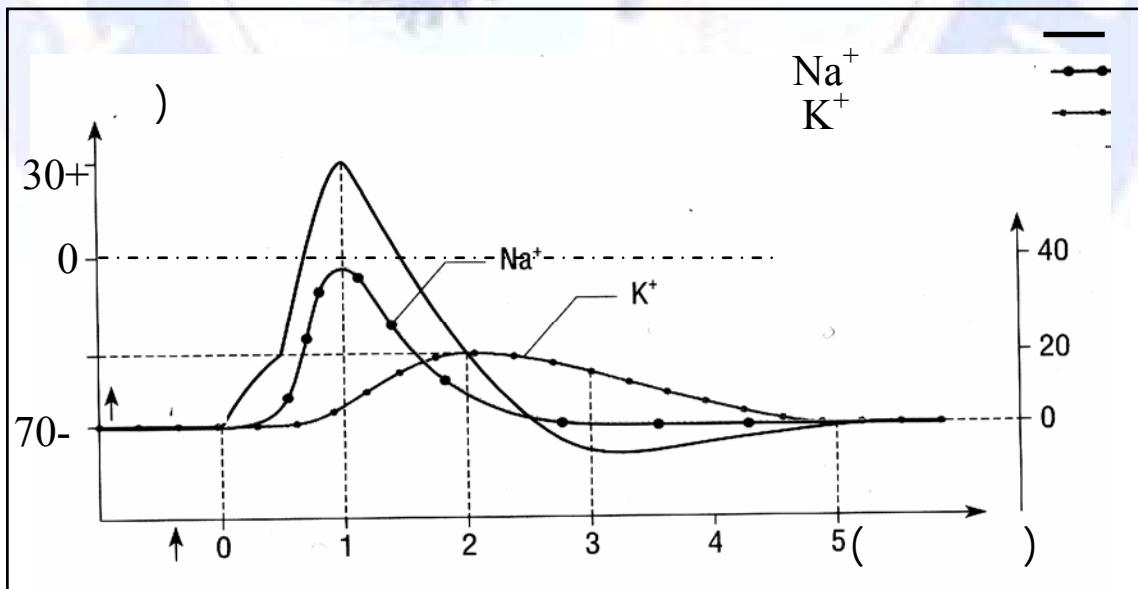
1952 (Huxley) (Hodgkin)

Na⁺

(14)

K⁺ Na⁺

K⁺



14

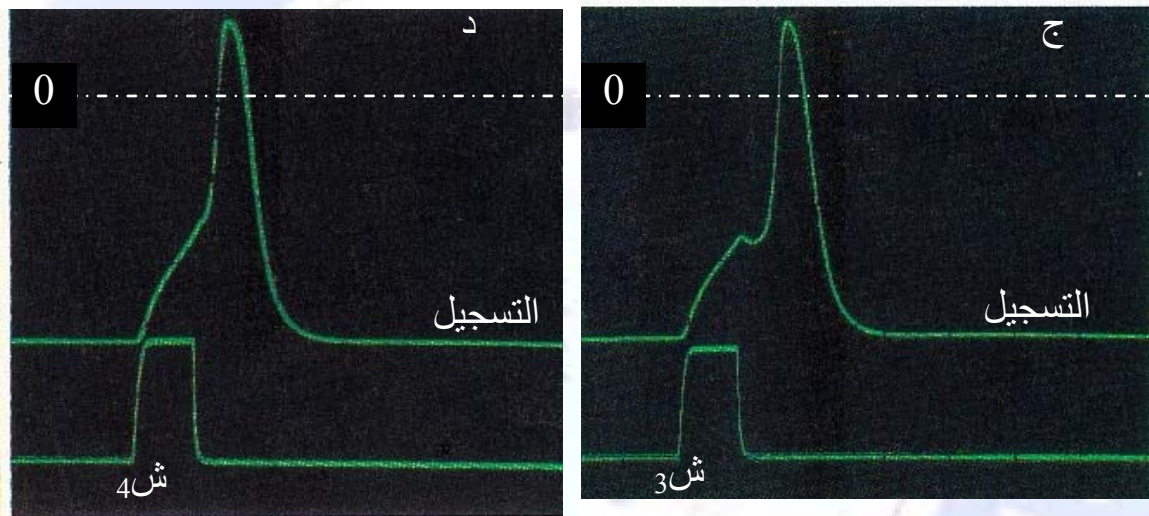
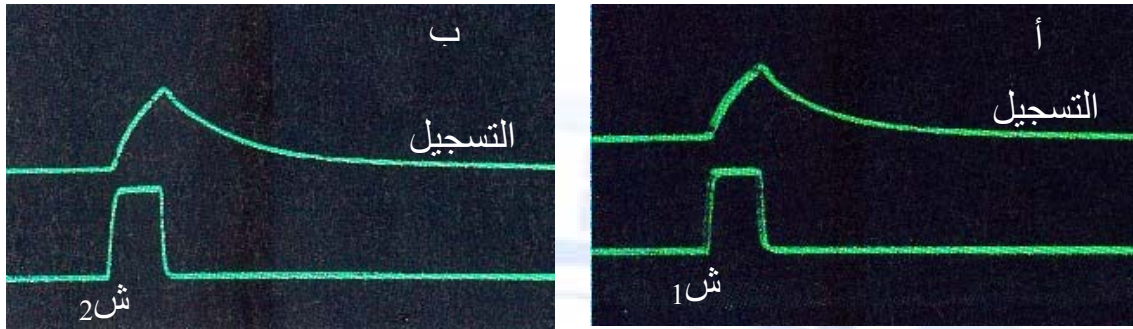
(14)

1

2

: 8

(15)



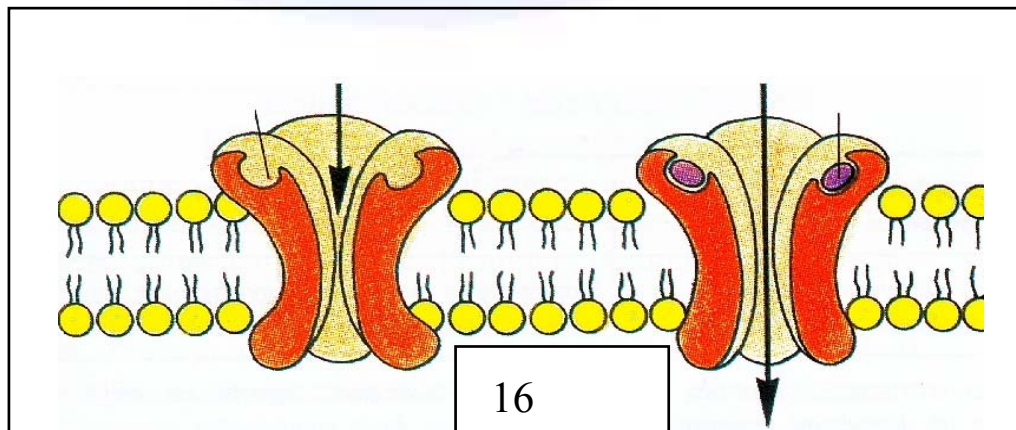
15

(15)

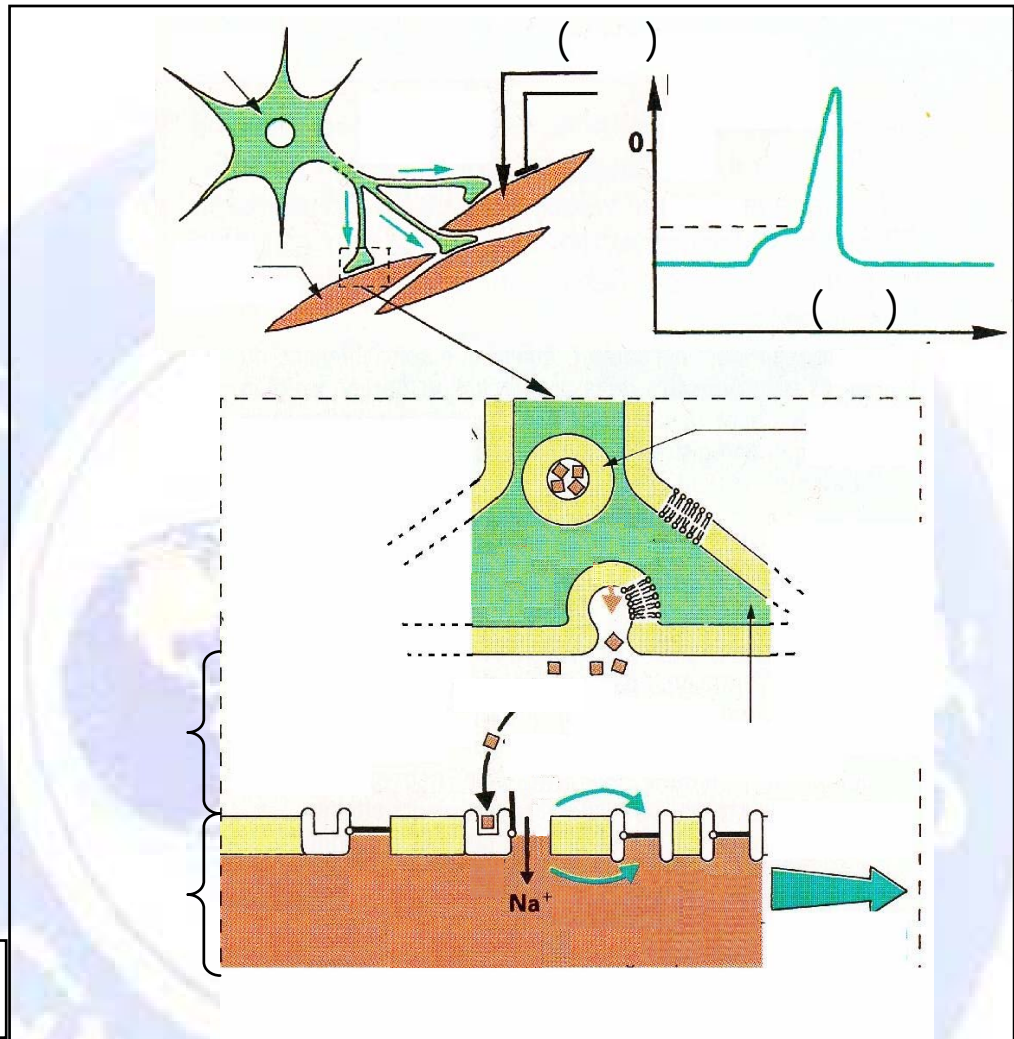
- 1
- 2
- 3

: 9

(16)



(17)



17

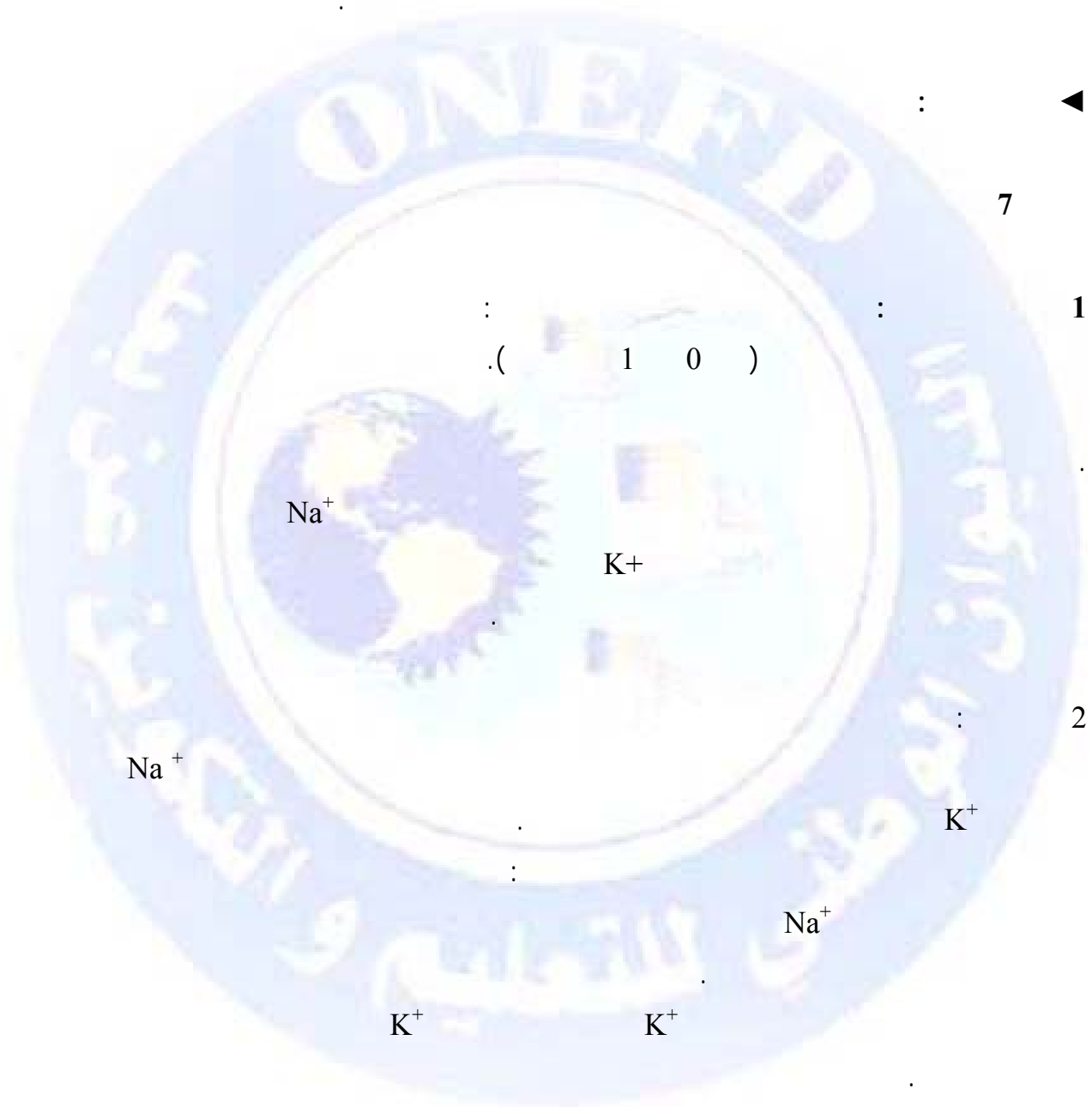
(17)

(16)

1
(16)

2

: 10



: ◀

7

: 1

(1 0)

Na⁺

K⁺

: 2

Na⁺

K⁺

Na⁺

K⁺

K⁺

K⁺

() ATP

K⁺ Na⁺

* :8

1 : () 2 1

2 : () 4 3

3 :

3 :

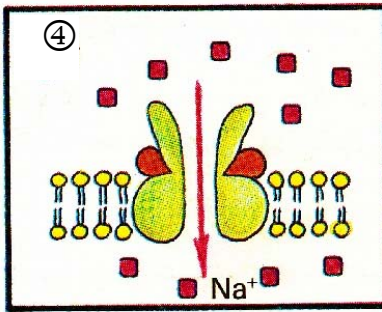
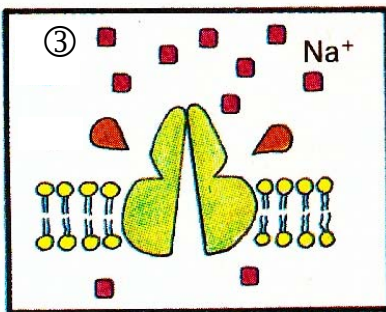
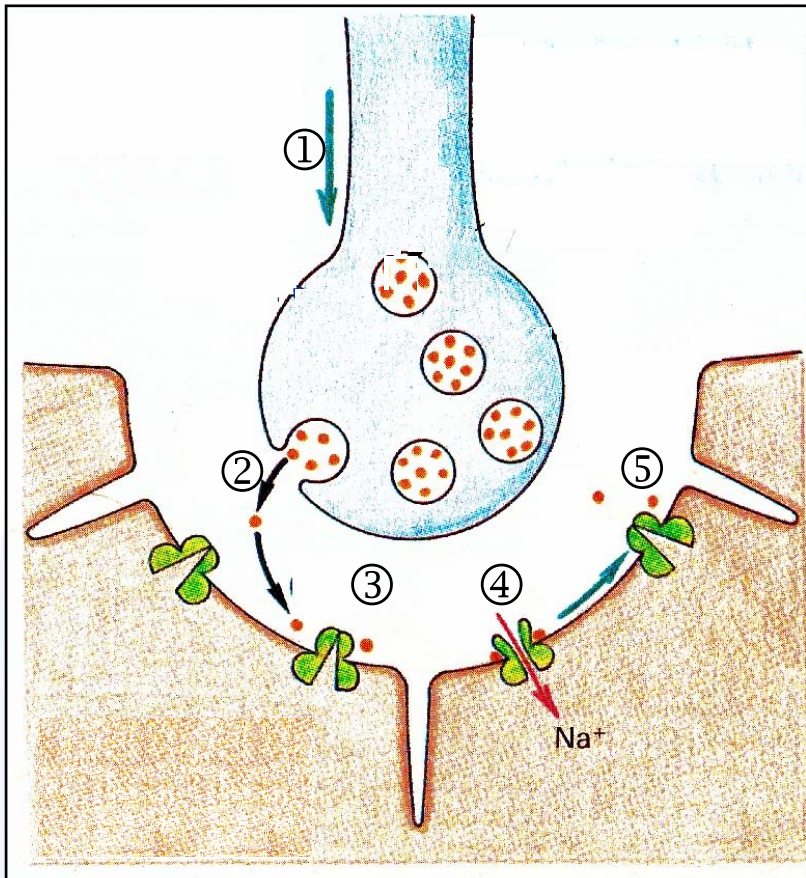
3 :

:9

1 : " (16) "

2 :





:1

:2

:3

:4

Na⁺

Na⁺ :5



:11

:

()

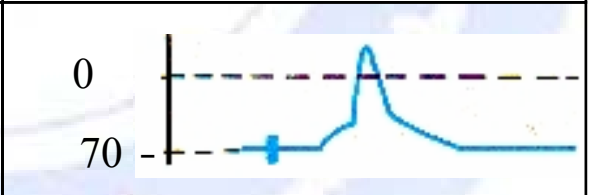
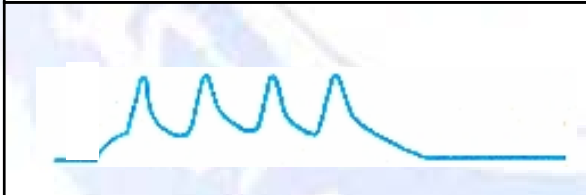
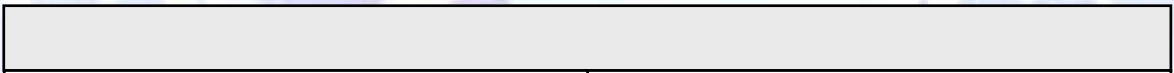
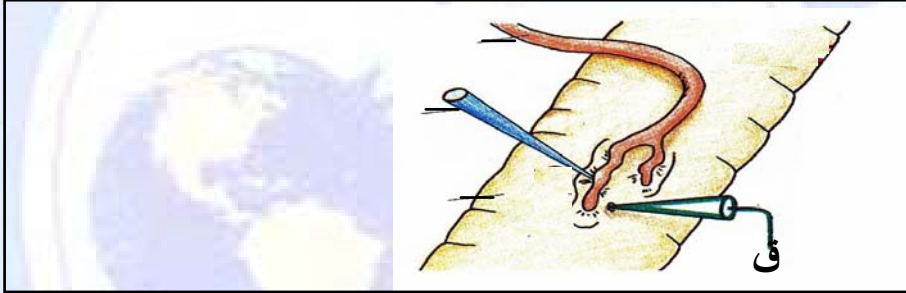
: 1

(18) ()

-

: 2

(18) () () Eserine



18

1

2

: ◀

: 1

)

: 1

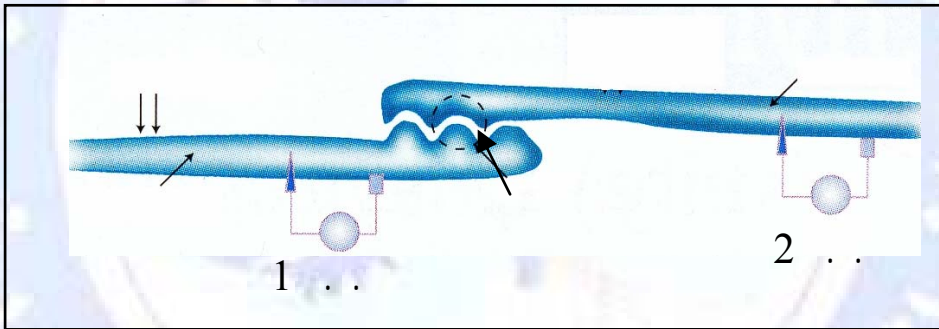
.(

: 2

: 2

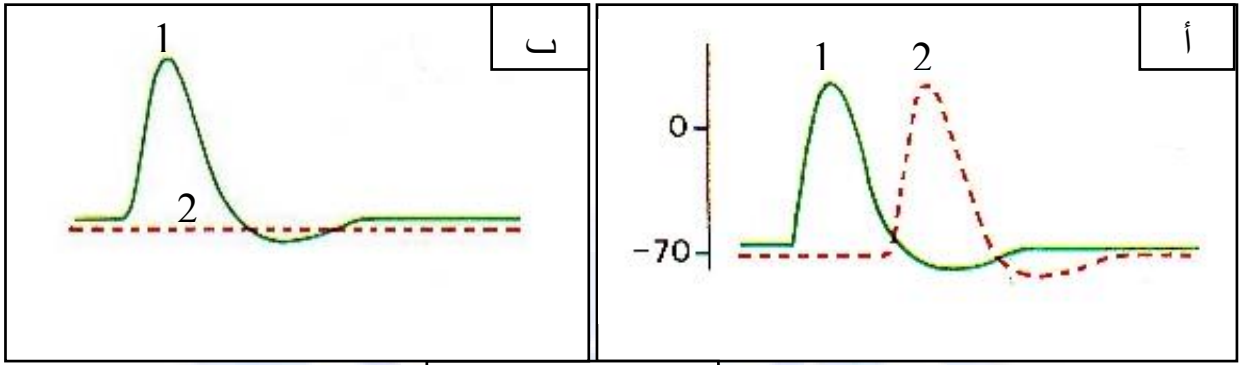


:12



: ... (-19) (2 1)
 . (2 ...) 2 (1 ...) 1
 (20)
 Ca^{2+}

(19) . (20)
 () Ca^{2+}
 . (20) (19) 2



الوثيقة 19



[Blank box]

[Blank box]

20

(Ca^{2+} Ca^{2+})

. 20

1
2

: 5

: 4

: 3

: 2

: 1:

1

2

Ca^{2+}

Ca^{2+}

Ca^{2+}

(19 2)

()

Ca^{2+}

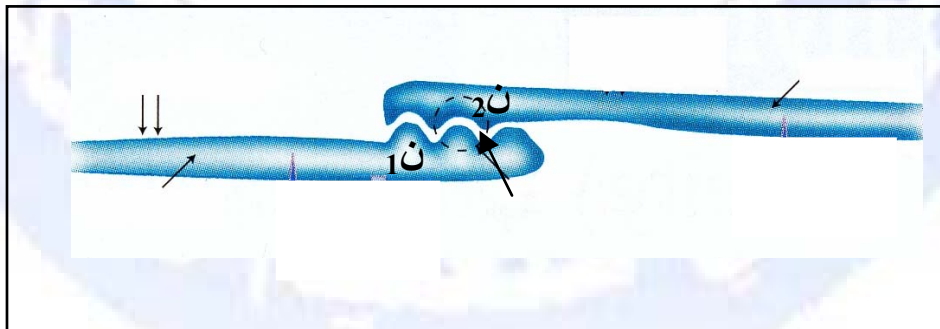
()

()

Ca^{2+}

:13

(12)



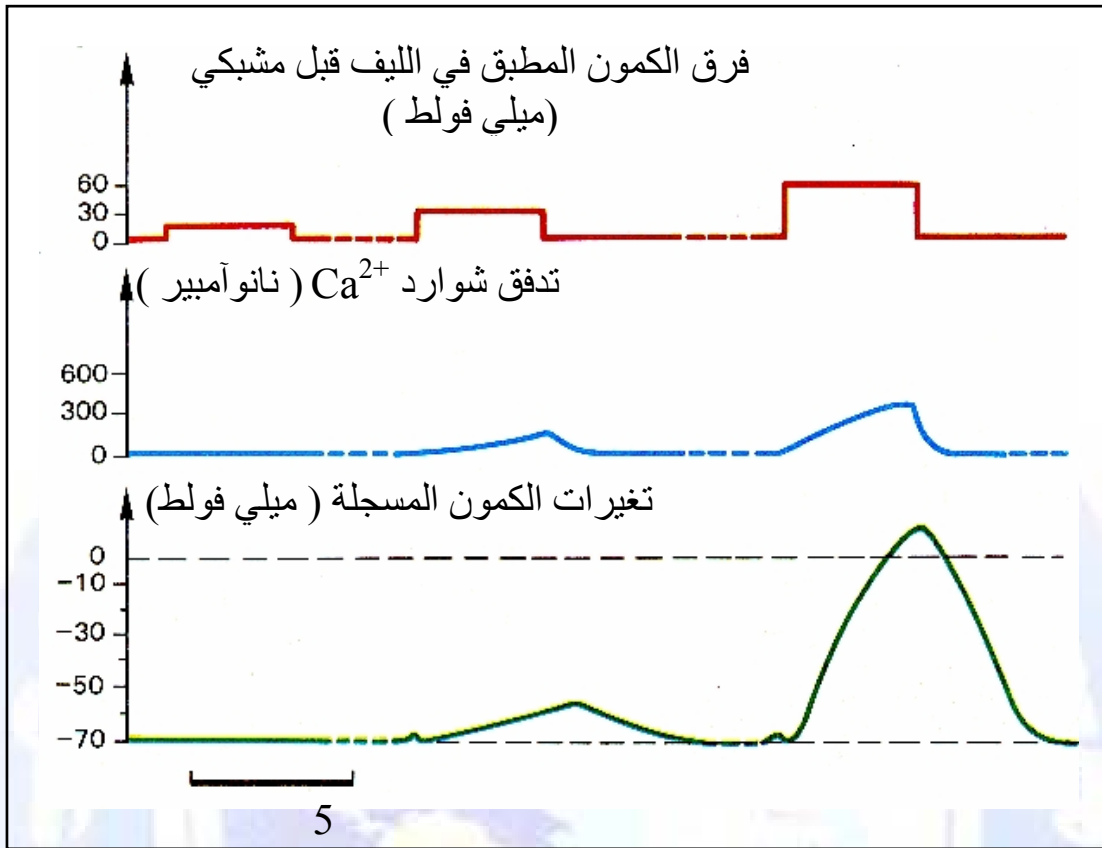
60 30 15

(1)

Ca^{2+}

(21)

(2)



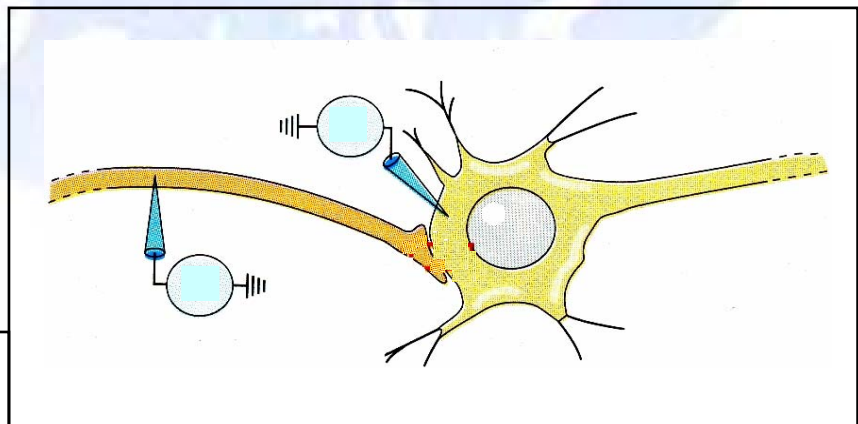
21

Ca^{2+}

1
2

: (22)

: 14

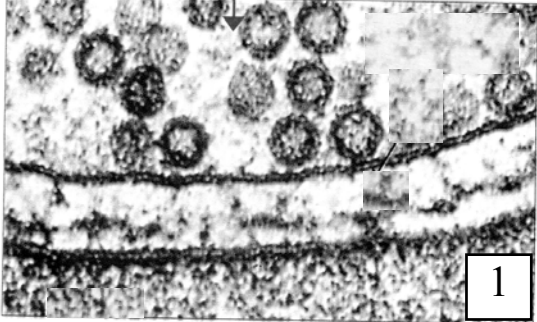

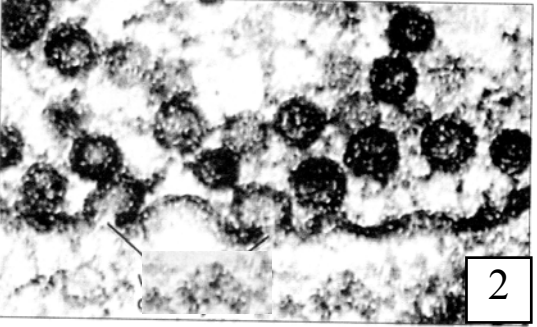
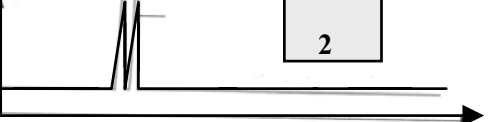
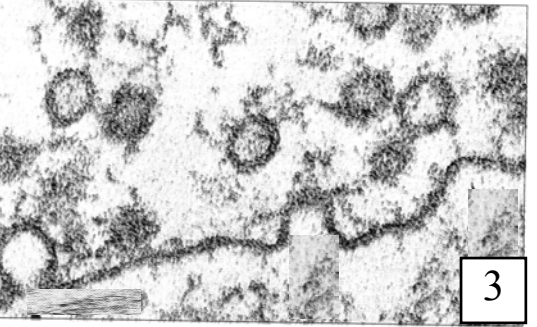
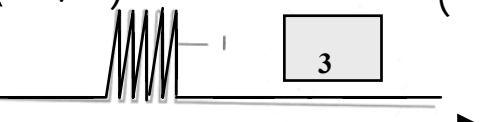
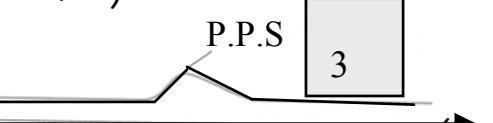


الوثيقة 22 - 1

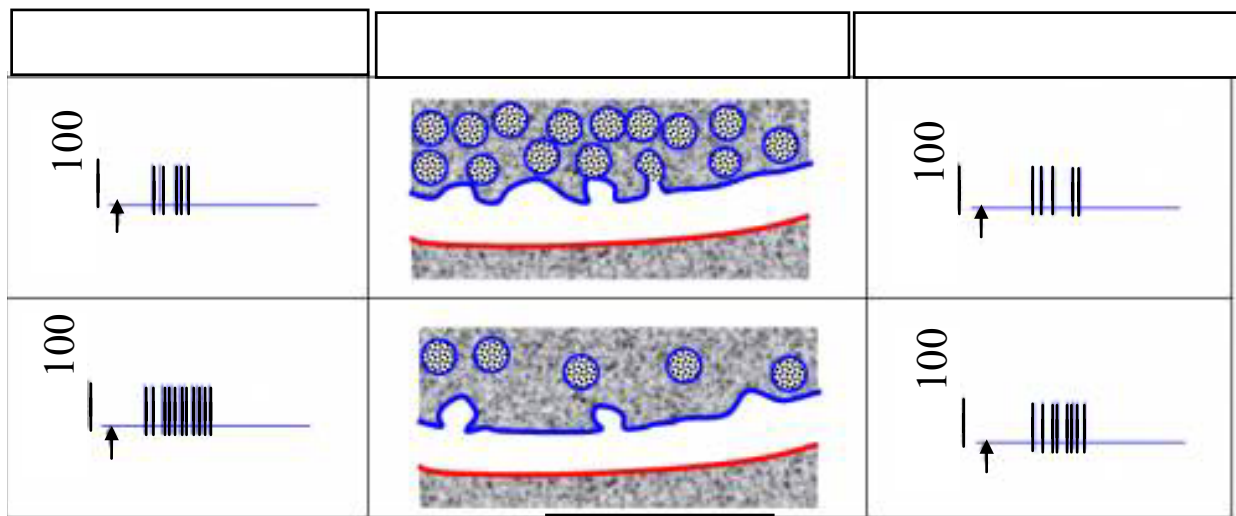
(22)

. () ()

(22)

 <p>1</p>	<p>(.)</p>  <p>1</p>
 <p>2</p>	<p>(.) (.)</p>  <p>2</p>
 <p>3</p>	<p>(.) (.)</p>  <p>3</p>
<p>22</p>	<p>(.) (.)</p>  <p>P.P.S 3</p> <p>(.)</p>

(23)



23

(23 22)

Ca^{2+} : 13
 : 1
 Ca^{2+} : -
 15 (150) Ca^{2+} -
 30 (600) Ca^{2+} -
 60 : 2
 Ca^{2+} :
 () Ca^{2+} :
 Ca^{2+} :
 Ca^{2+} :
 Ca^{2+} :
 Ca^{2+} :

: 14

:(22) *

: 1

. ()

) (2) : 2

) (3) : 3

(
: (23) *

()

: 15

1

. 10

2

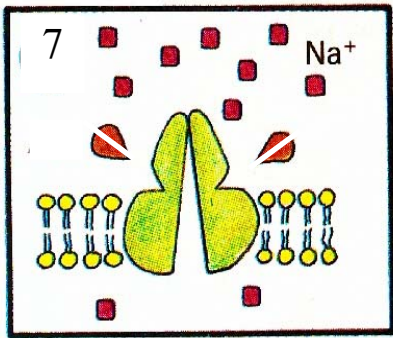
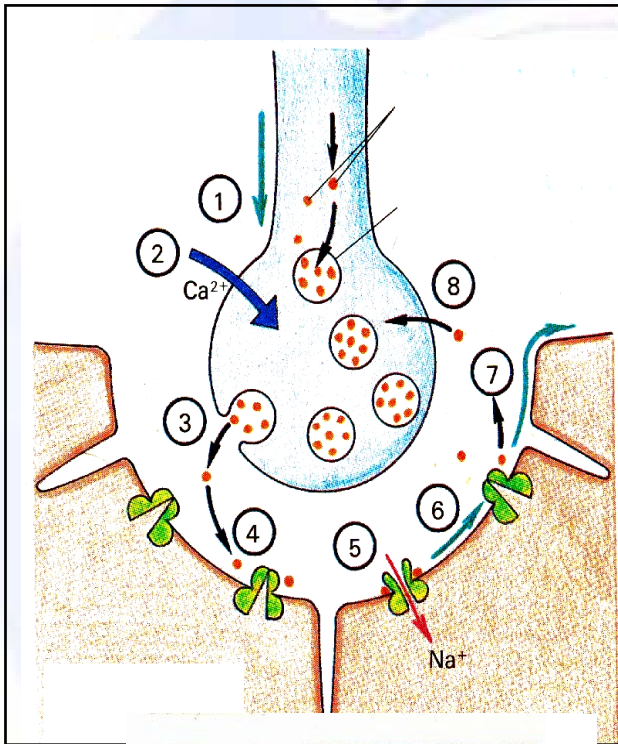
: ◀

:

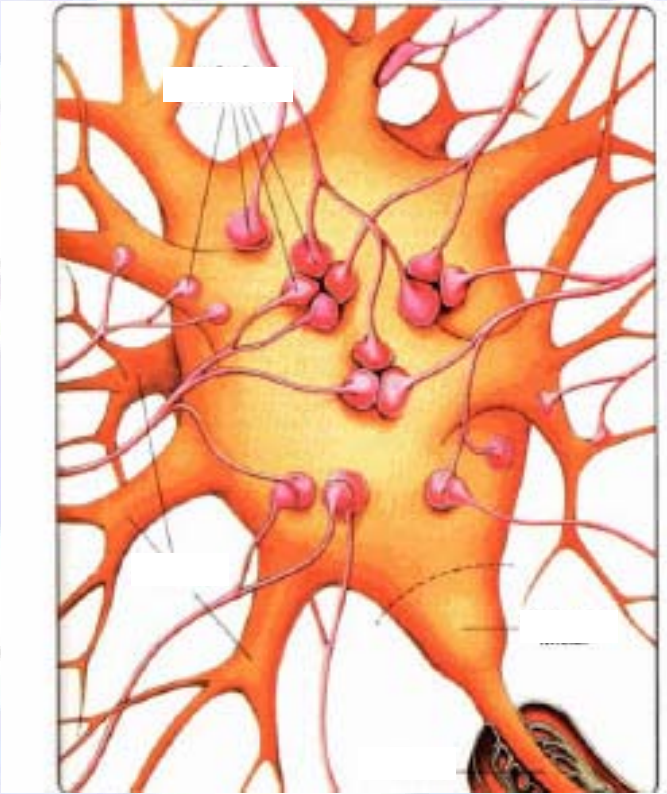


()





	:1
Ca^{2+}	:2
	:3
	:4
Na^+	:5
	:6
	:7
	:8

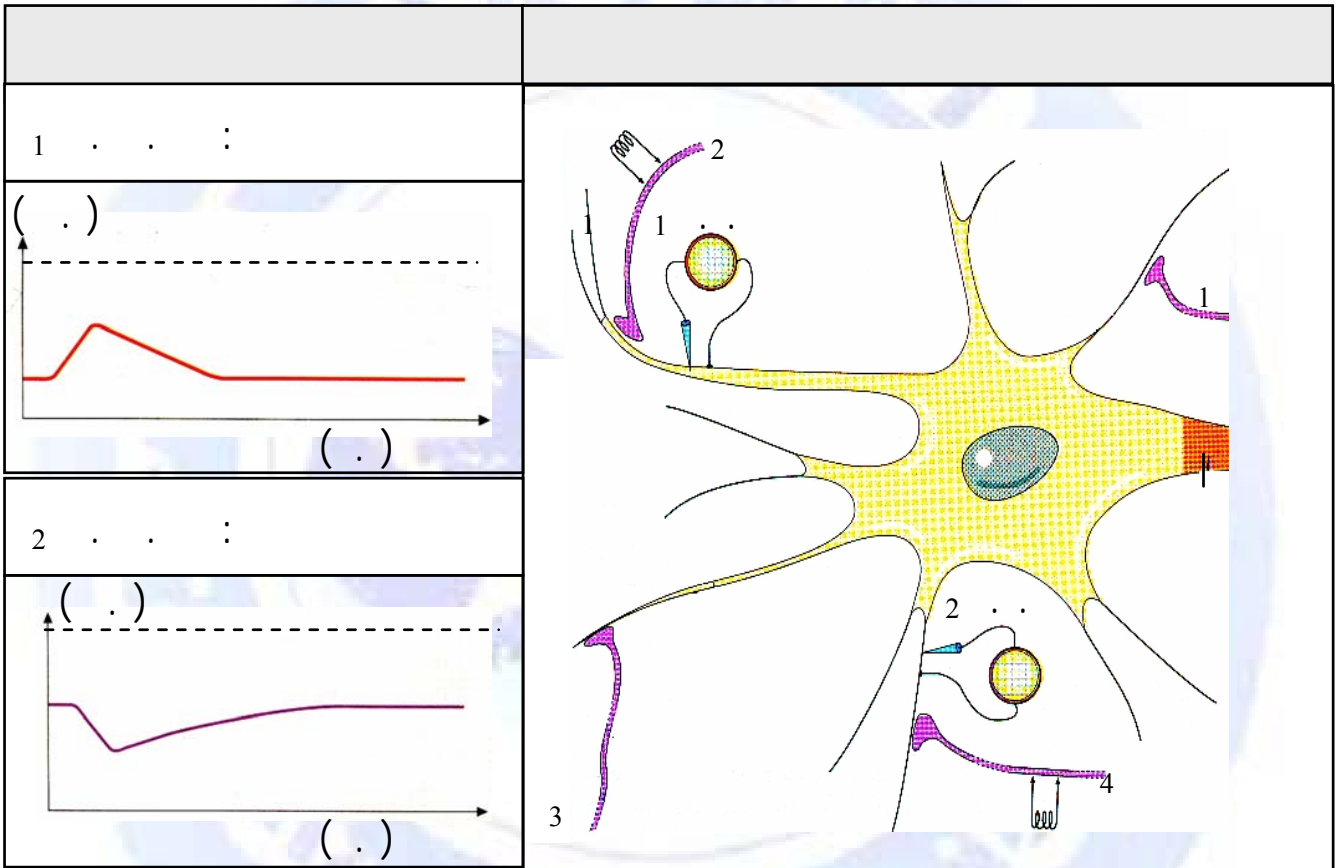


:1

(4) (2)

(2 . .) (1 . .)

(1)



1

(1)

. (PPSE)

2

:



4

:

2 . .

. (PPSI)

:

(PPSE)

:

*

(PPSI)

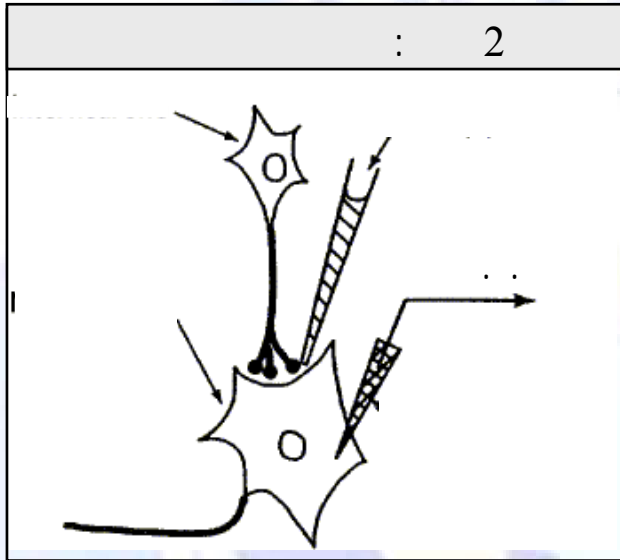
: *

: 2

GABA

*

)



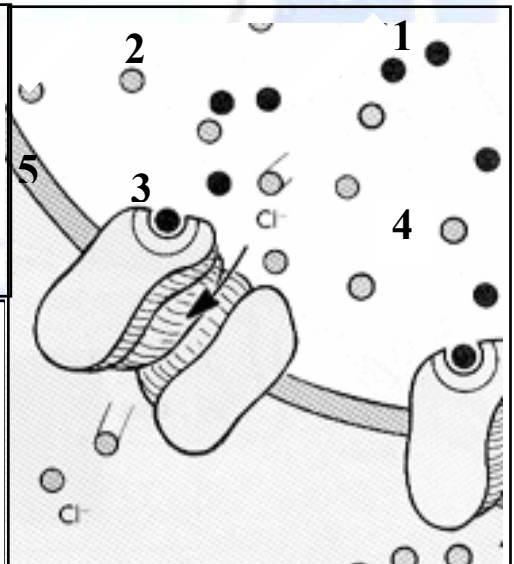
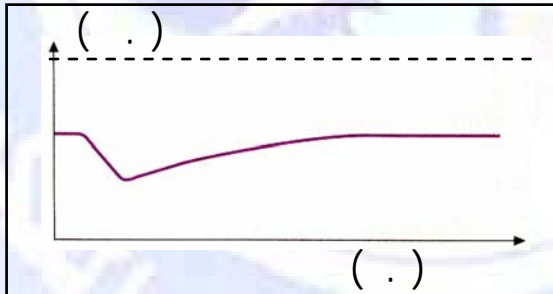
: 2

.(2

(2)

: GABA

.(GAD)



Cl⁻ شوارد :2 GABA :1

GABA :3

: 5

: 4

2

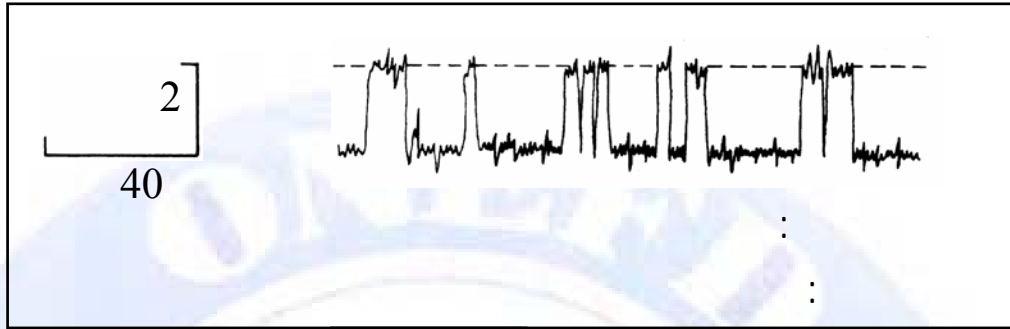
()

Cl⁻

(3)

*

.GABA



3

GABA

(3 2)

1

2

. GABA

3

:

1

Cl⁻

GABA

: GABA

Cl⁻

2

Na⁺

GABA

Na⁺

3

()

:

:

Na⁺

*

. Cl⁻

GABA

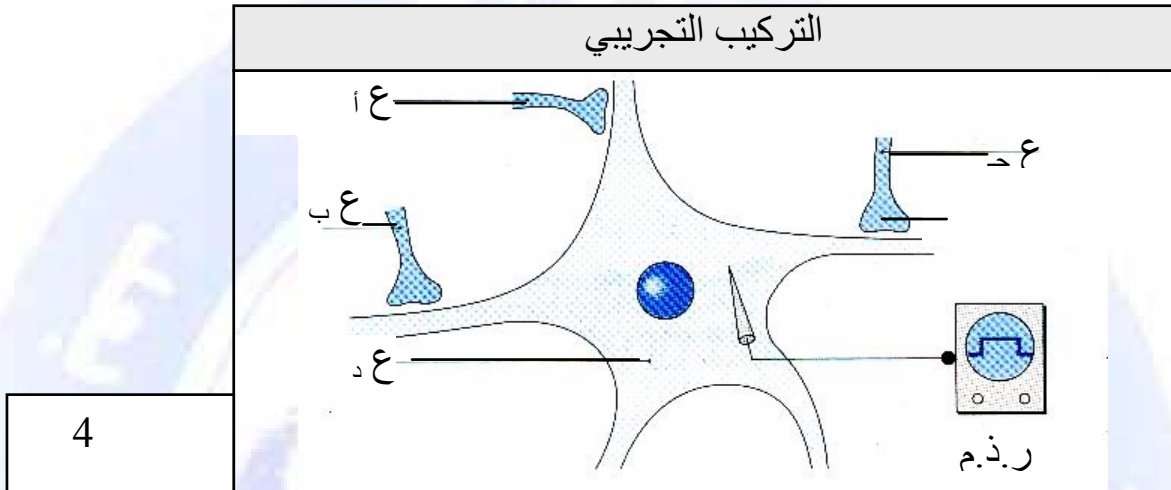
*

(K⁺)

II

3:

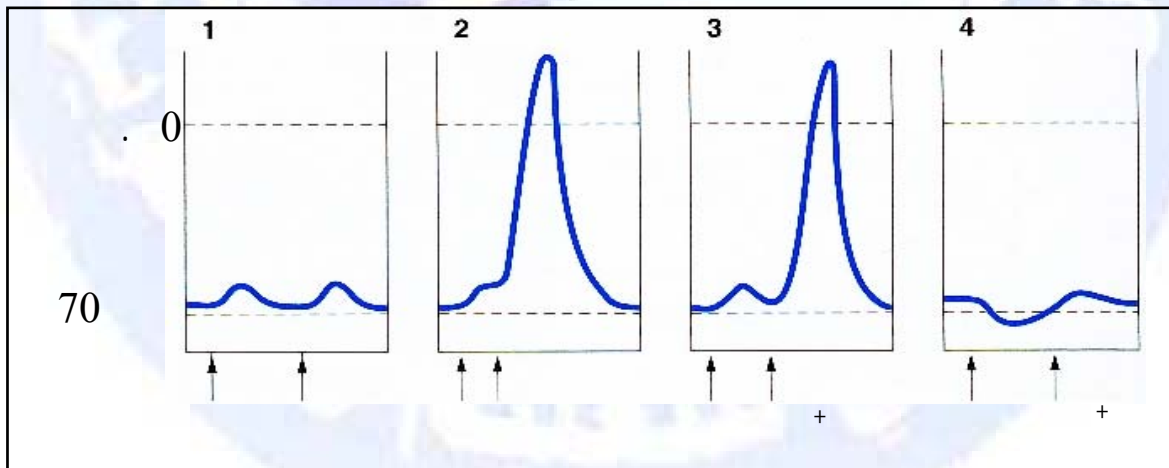
(4)



()

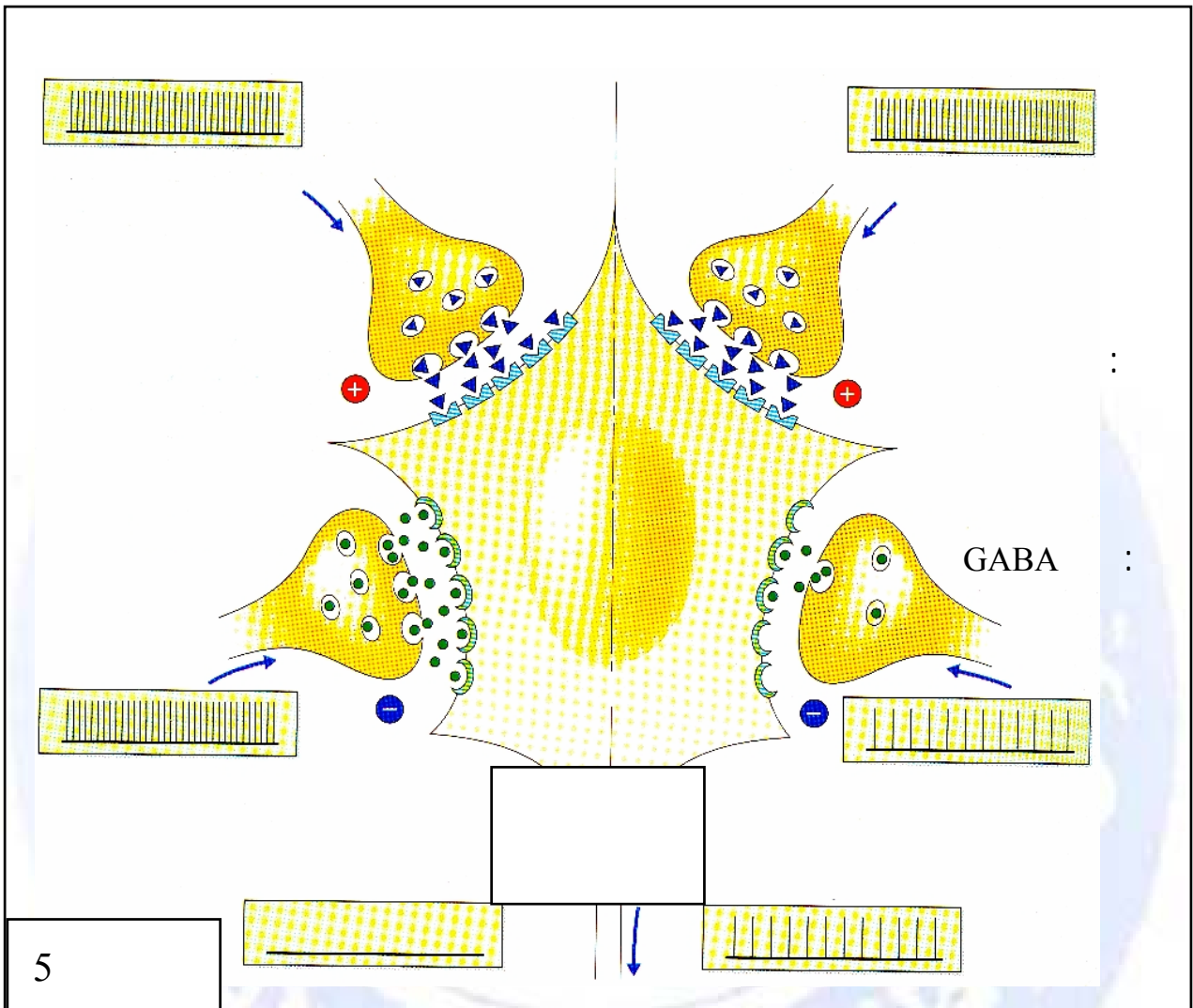
(4)

()



4

(5)



5

(4)

1

2

(5)

3

: 4

: ◀

:3

: 1

() :1

() :2

() :3

() (

() :4

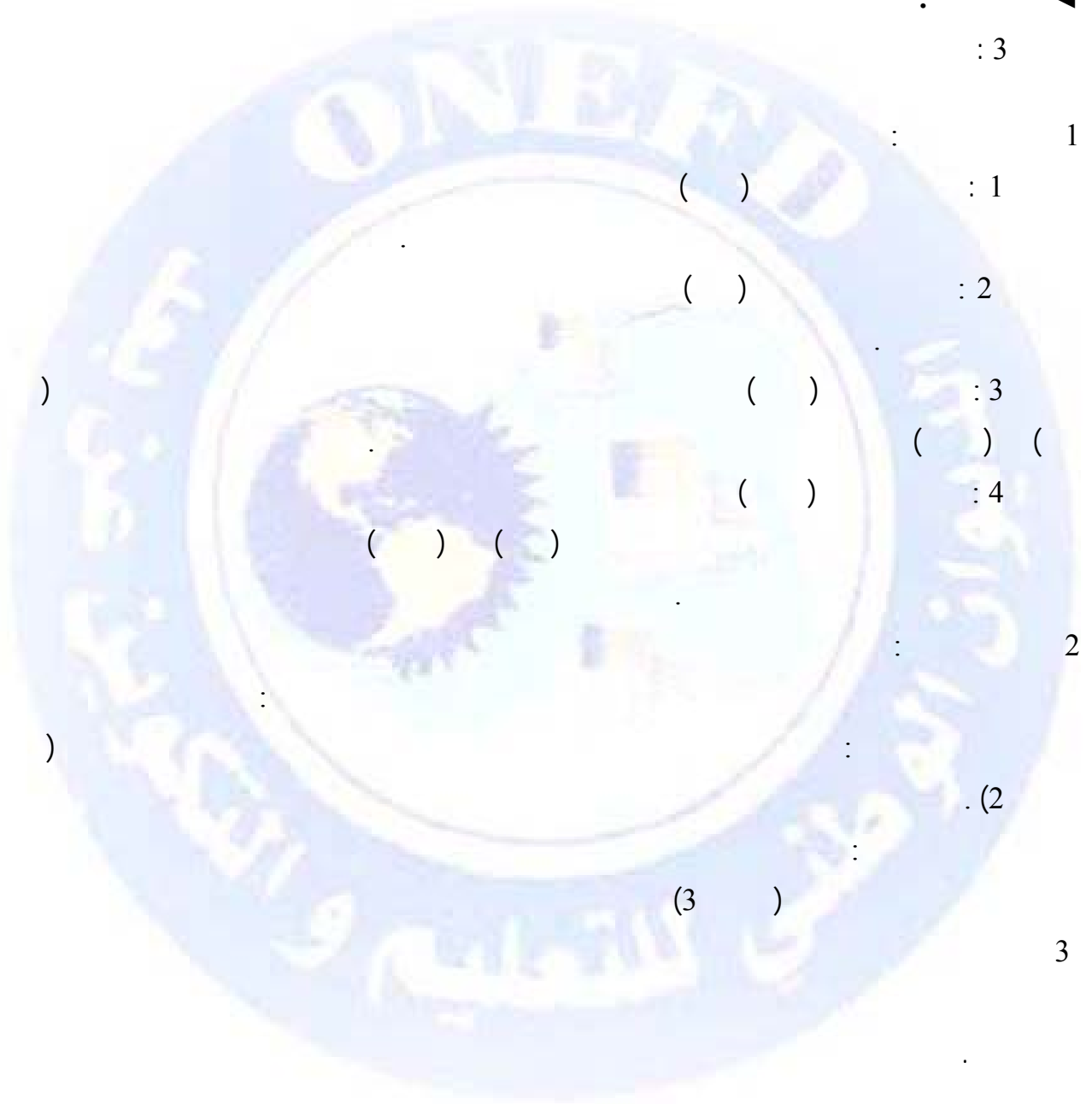
() ()

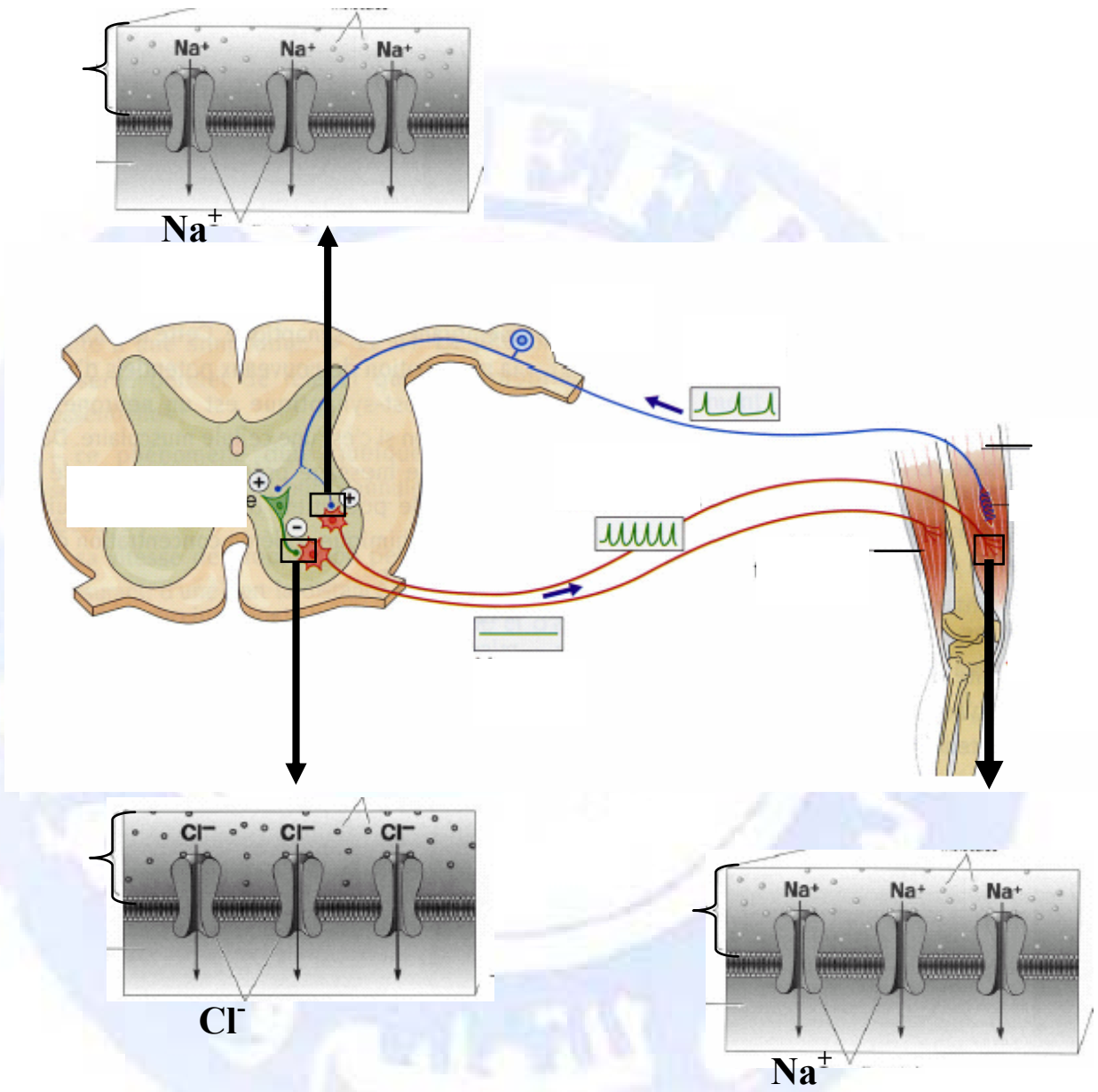
: 2

.(2

(3)

3





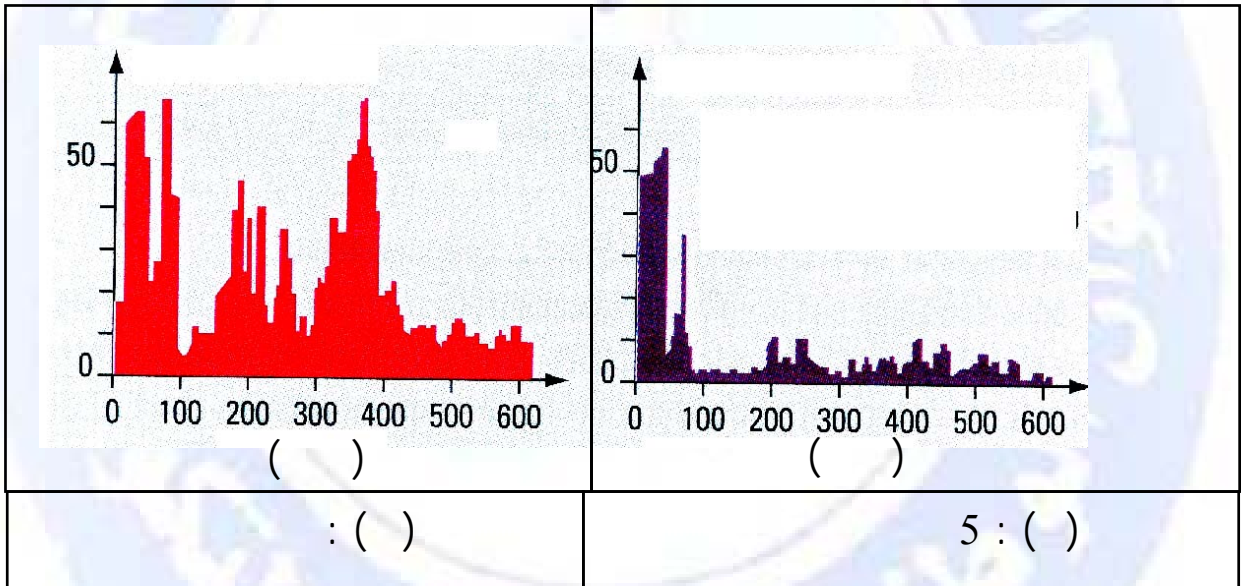
:

:1

(6)

*

(6)



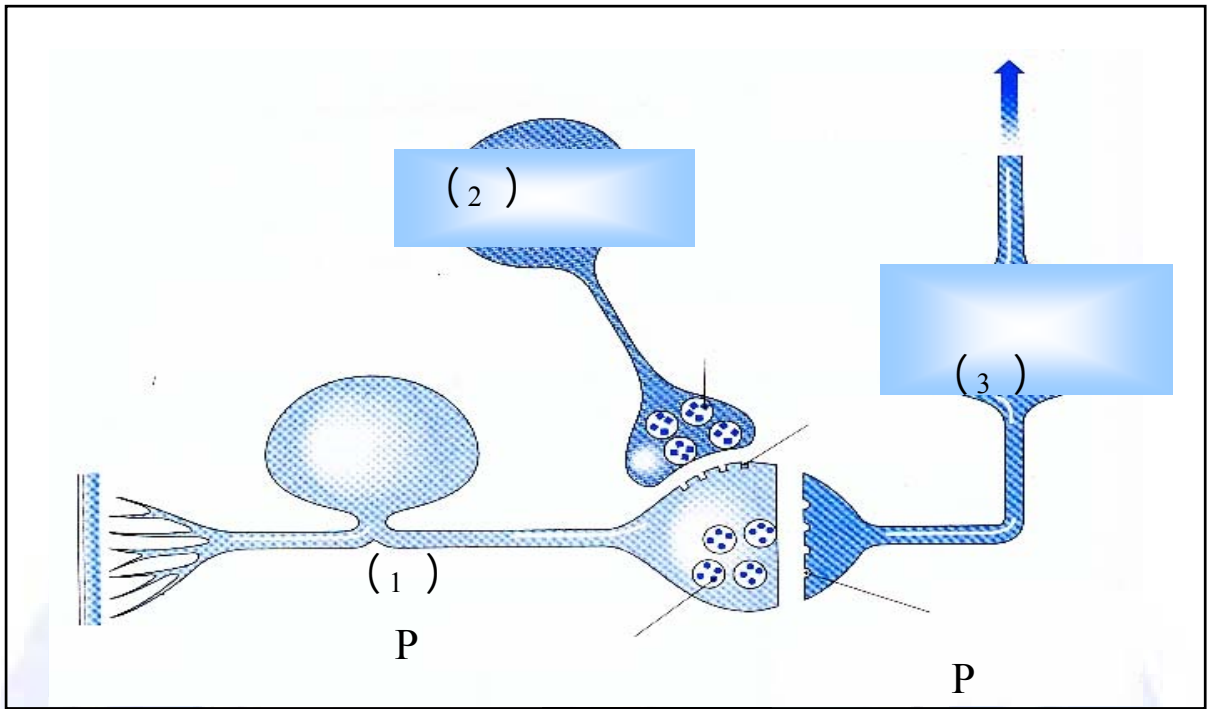
6

*

:

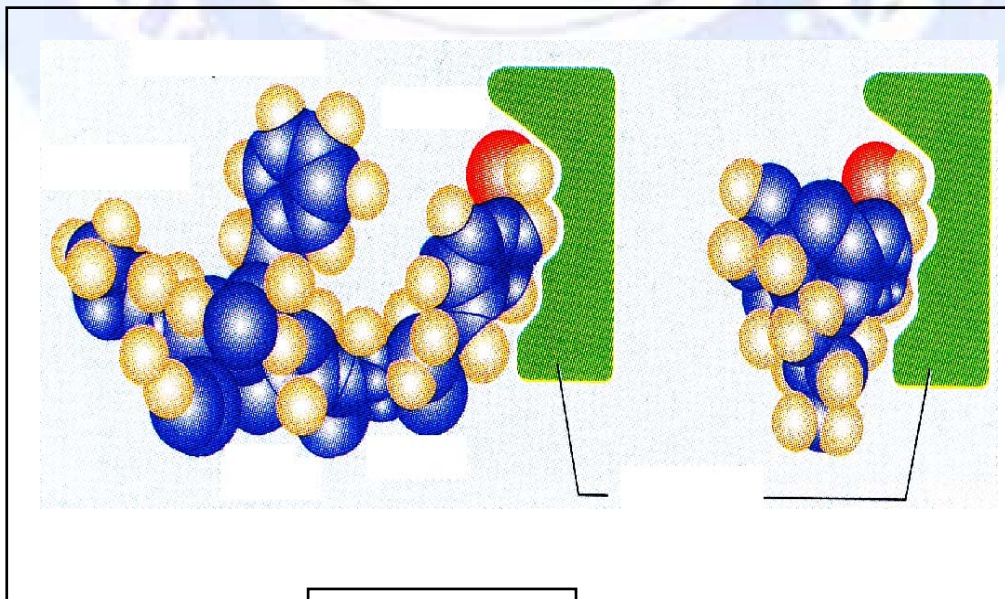
(7)

*



7

(1) (1) (P) (1)
 (3 1) : (1) (2)
 (1 2) (P)
 (3 1) (8)



8

(6)

1

2

(8 7)

3

: 2

()

(Benzodiazépines)

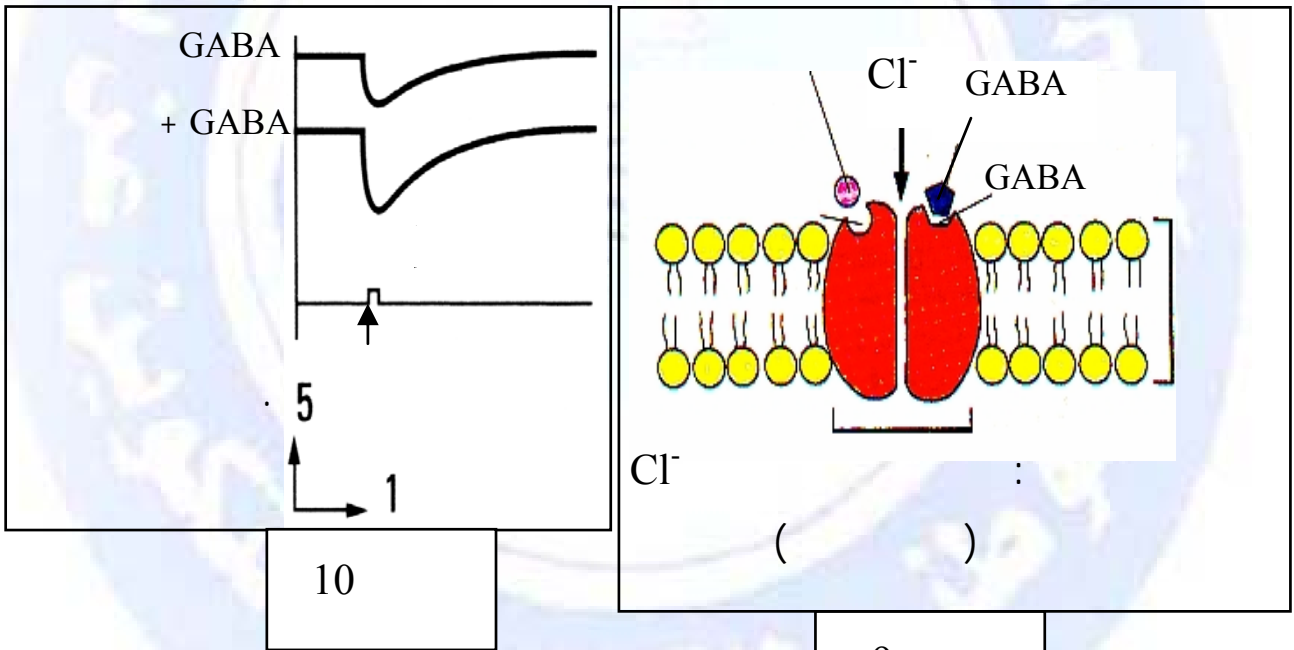
GABA

1978

)

GABA

(9)



10

9

(10 9)

1

2- من النشاطين 1 و 2 استخراج طريقة تأثير المخدرات على مستوى المشابك.

: 3

: 1

1

2

3

(P)

()

(8)

(P)

: 2

1

Cl⁻

GABA

:GABA

Cl⁻

. GABA

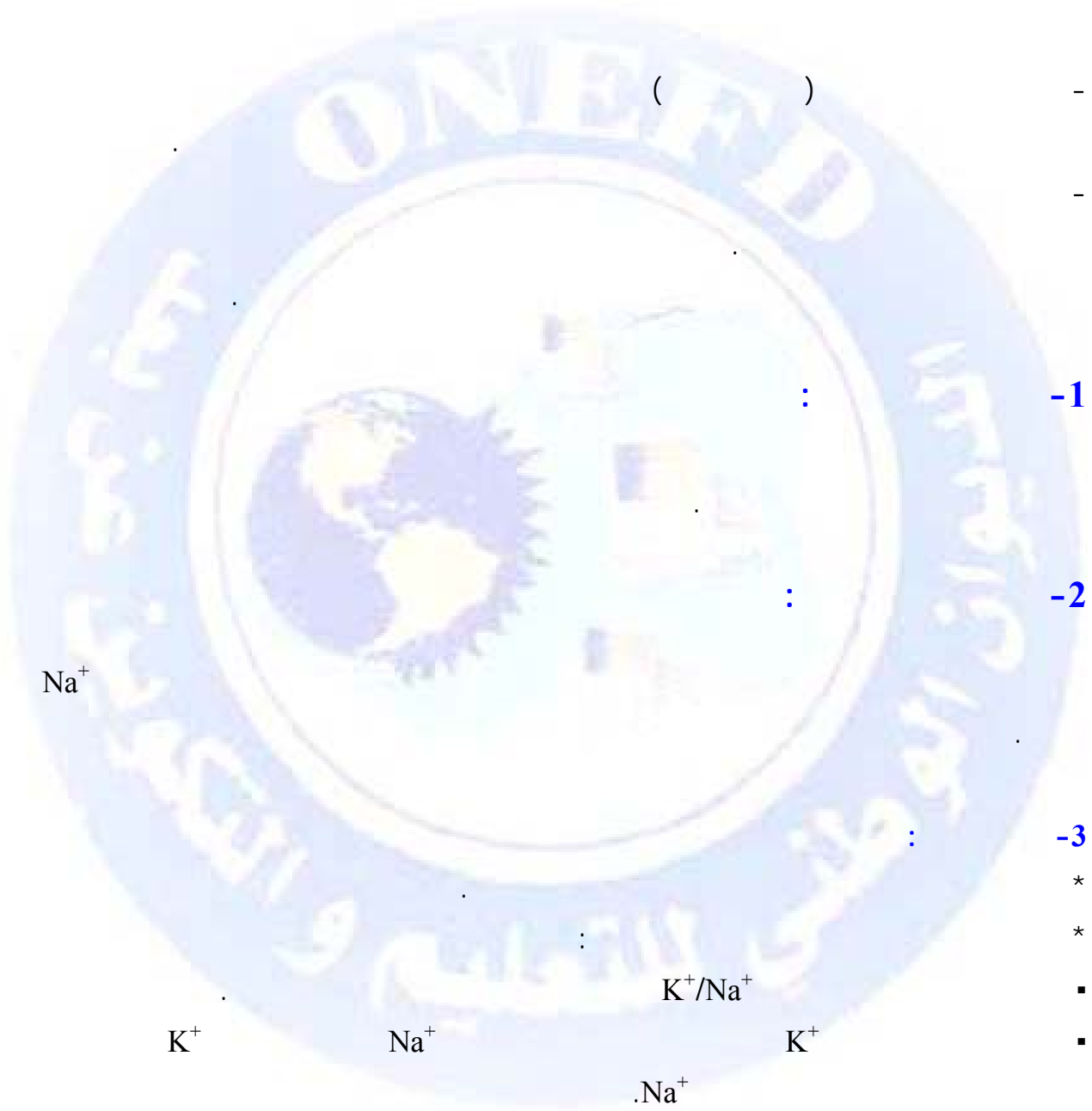
(9)

(10)

. GABA

2- ترتبط طريقة تأثير المخدرات بطبيعة المادة :

. GABA



()

-1

-2

-3

Na⁺

K⁺

Na⁺

K⁺/Na⁺

K⁺

.Na⁺

Na⁺

(-70mv)

K⁺/Na⁺

K⁺

.ATP

-4 :

Na⁺ Na⁺
K⁺ K⁺
(ATP) K⁺/Na⁺

-5 :

Na⁺ ()
() ()
Na⁺

Ca²⁺

Ca²⁺

-1 :

(PPSE)

(PPSI)

:

Na⁺

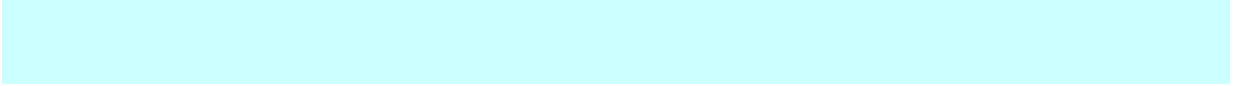
GABA

Cl⁻

:

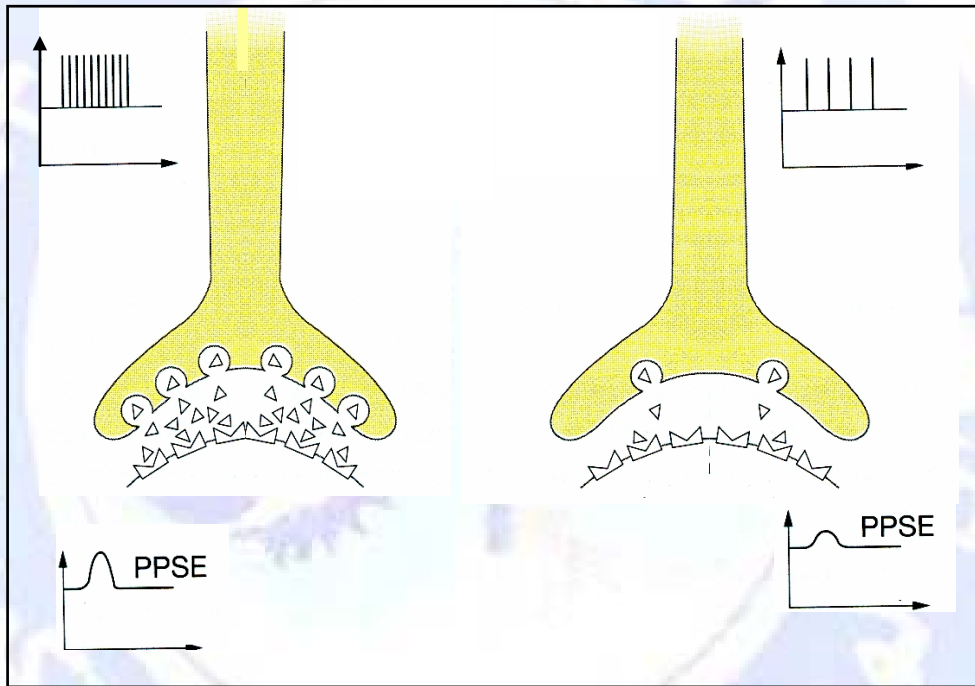
-2





: 1

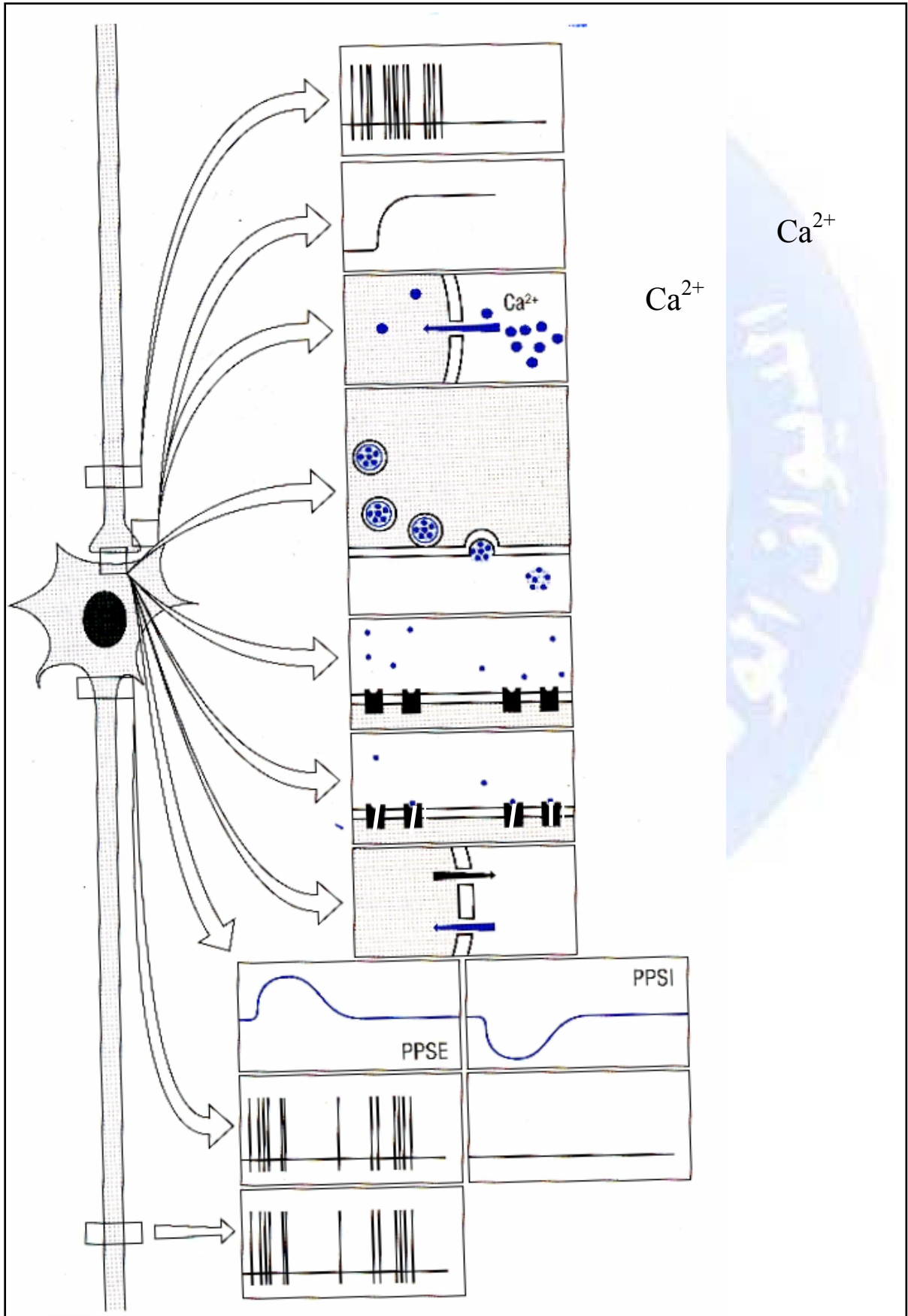
. (PPSE)

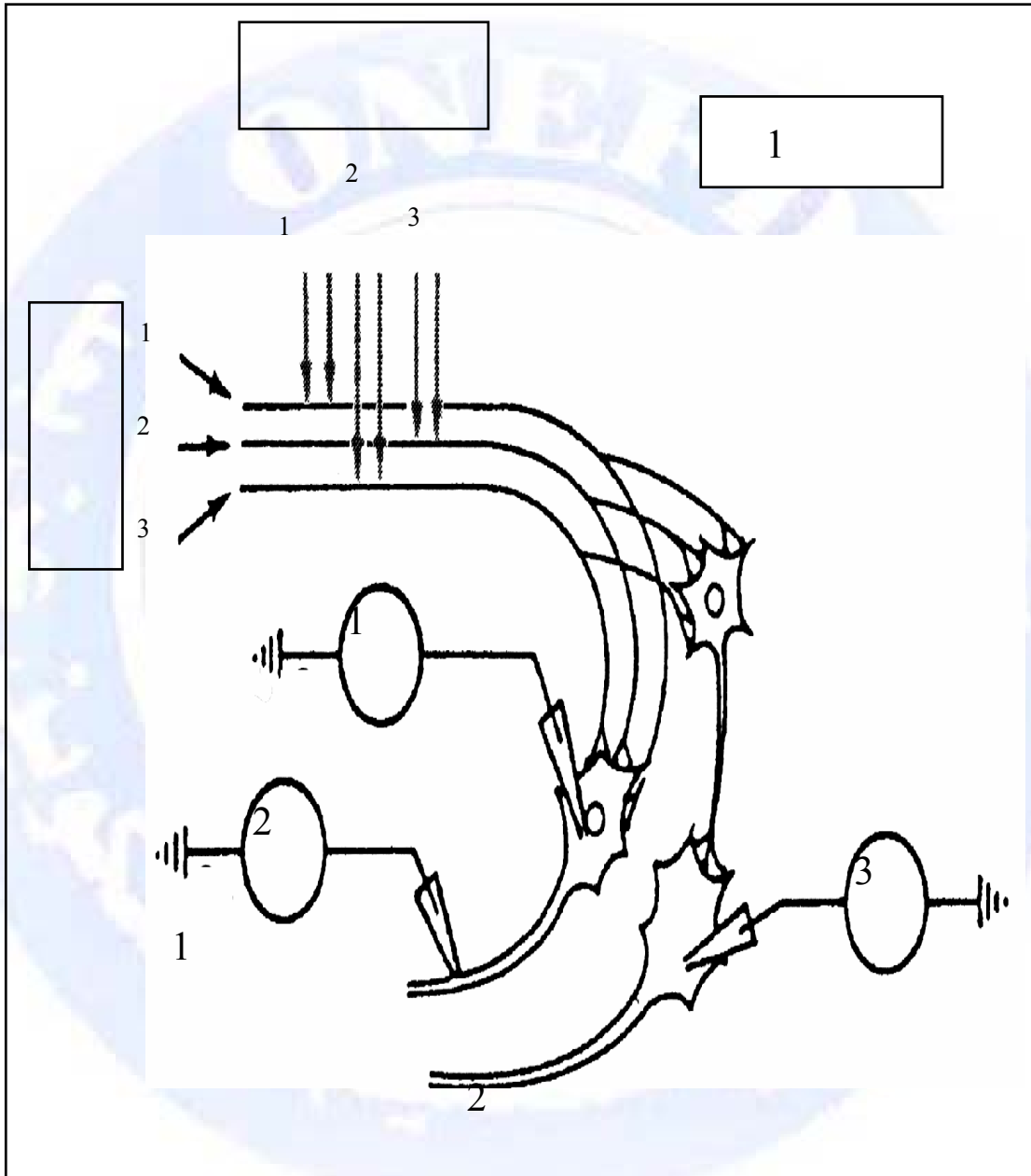


. PPSE

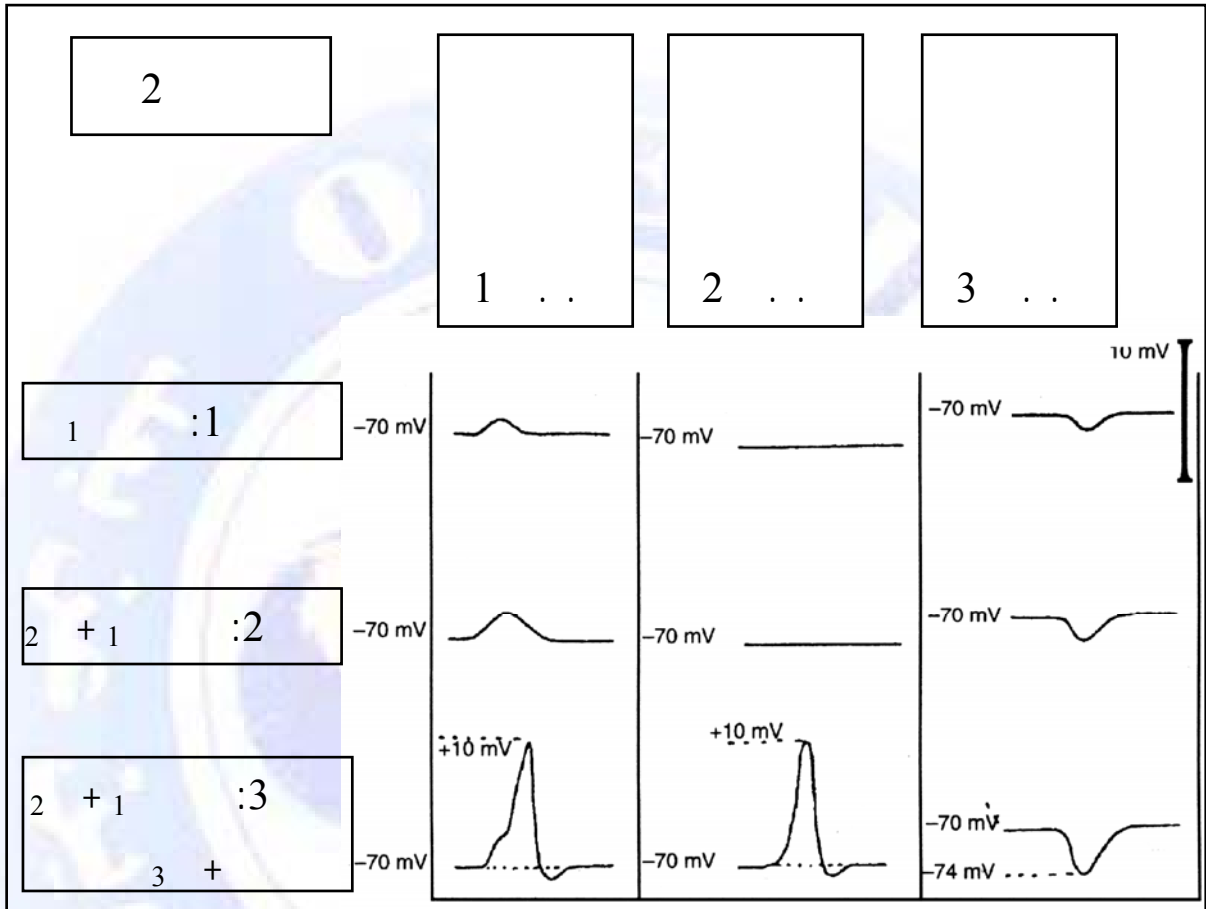
1

2





(2)



1

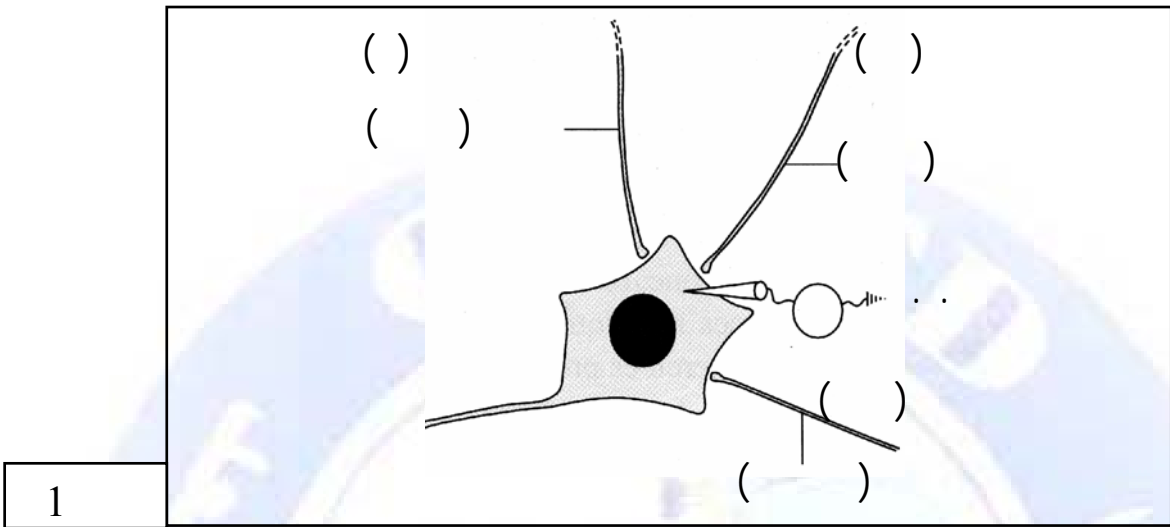
2

3

: 4

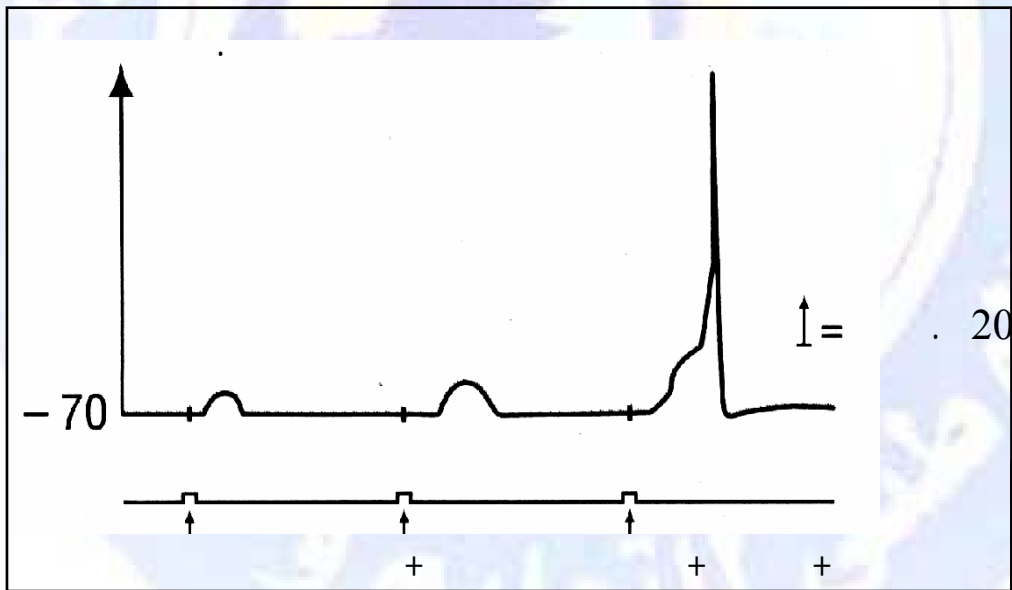
() () ()

(1)



1

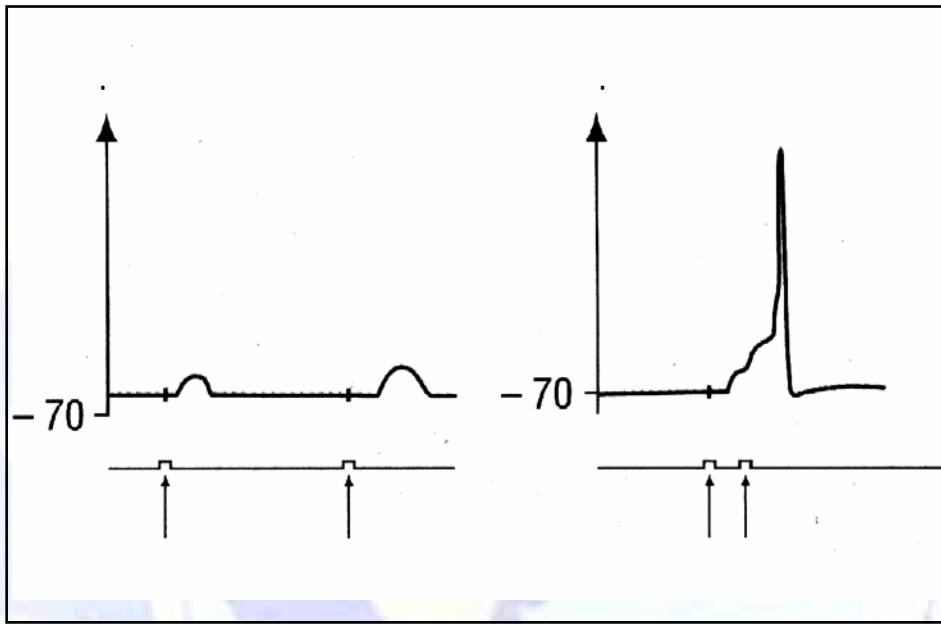
(2) (. . .)



2

(1)

2



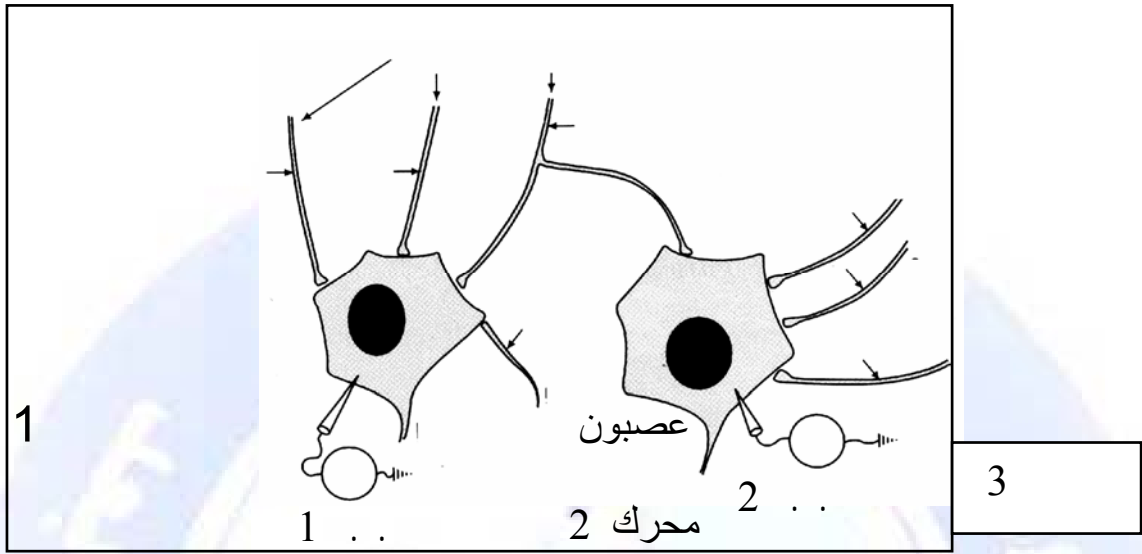
3

: (3)

()

3

()



- 1 .. ()
- 0.1 ()
- () ()
- () ()
- 2 .. ()
- 0.1 ()
- () () () ()
- ()
 - ()
 - ()
 - ()