

إختباراتي

السبيل
إلى:



حوليات في مادة :

العلوم الفيزيائية



4

متوسط

من إعداد الأستاذين:

مصباحي إسماعيل وزغدي مبروك

المقدمة

باسم الله و الحمد لله و الصلاة و السلام على رسول الله و على آله و صحبه و من والاه
أما بعد :

أعزائي التلاميذ إن تحصيل الفهم و اكتساب العلم و المعرفة و تحقيق التفوق الدراسي لا يكون
بالاعتماد فقط على ما يقدمه الأستاذ في القسم رغم أهميتها و إنما يكون بعد التوكل على الله
نتيجة بذل المجهود و التركيز و المذاكرة المنزلية و المثابرة المستمرة و النهل من المراجع سواء
المدرسية أو الخارجية ، القيمة و المفيدة .
من أجل هذا و ذاك فإنه يسرني و يشرفني أن أقدم لزملائي الأساتذة ولأبنائي التلاميذ هذا العمل
المتواضع ثمرة جهد اختبراتي .

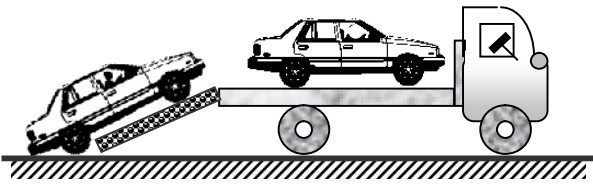
حيث كنت في السنوات الماضية انشر اختبراتي في الشبكة العنكبوتية ثم جاءت فكرة جمعها و
وضعها على شكل كتيب لتسهيل الاستفادة منها .
لعله يبادر لأذهانكم أنني حملتها من الشبكة العنكبوتية فهي اختبراتي
من خلال تأليفنا لهذه الحولية نأمل أن نكون قد وضعنا لبنة في صرح العلم
و المعرفة في وطننا الغالي ، كما نتمنى أن نكون قد سهلنا مهمة تلامذتنا في دراسة هذه المادة
، و القدرة على استيعابها ، كما نرجو أن يساهم عملنا هذا في دعم و إثراء مكتسبات الزملاء
الأساتذة .

وفق الله الجميع

(08) :

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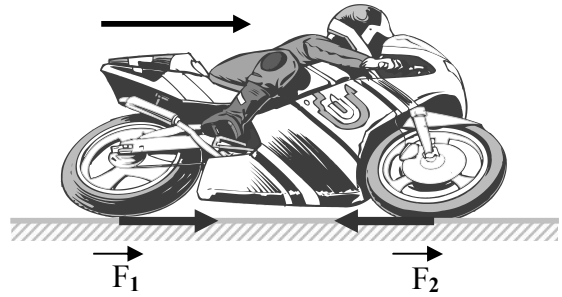
الموضوع 01

(12) :

(06) :

$\vec{F}_2$ $\vec{F}_1$

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(4



(06)

الموضوع 02

(12) :

(06) :

. $F_1 = 800 \text{ N}$

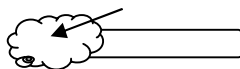
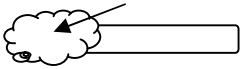
. $F_2 = 600 \text{ N}$

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(1

. (1)



1

F_2	F_1	

(1

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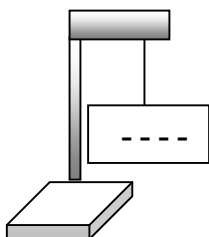
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(2)

(A)



(A)

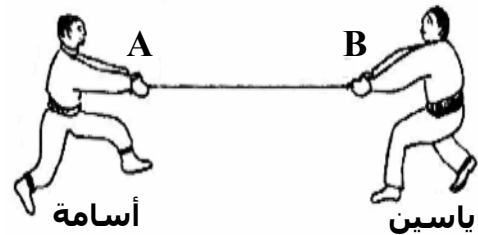
-2-

200N $\longrightarrow$ 1cm:

(2

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(3



أسامة

ياسين

الموضوع 03

(06): (12):

2018

. 1000Kg

(1

p **m**

(2

. 1.6N/kg

(3

.1600N

(06)

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• ((

(1

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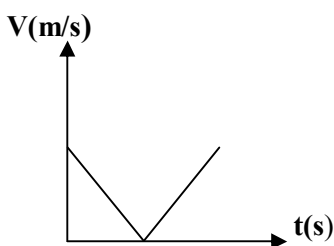
(3



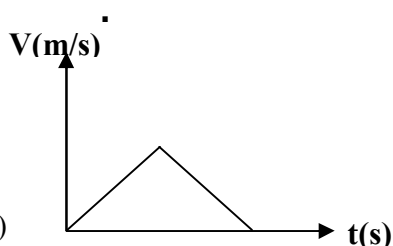
(08) :

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(2



مخطط اسامة



مخطط ياسين

2

(06) :

(1

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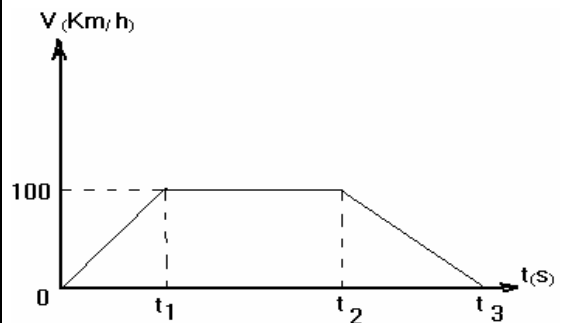
(3

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(

 $t_2 :$

(4



(08) :

80Kg

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(4



(08) :

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R

S



الموضوع 04

(12) :

(06) :

(s)

400Kg

.(s)

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(s)

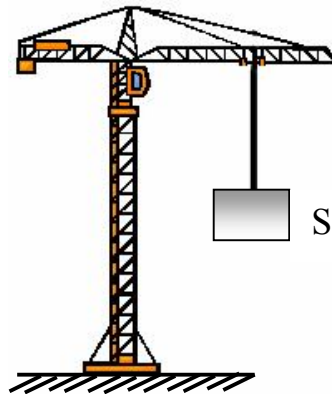
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(3

.3900N

**

$g = 10\text{N/ Kg}$



(06) :

(1)

(2)

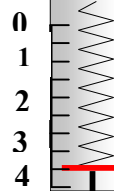


.(1)

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(1)

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				p

(4

.(2N → 1Cm)

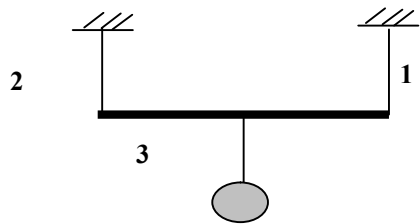
3

$g=10\text{N/ Kg}$

(5

الموضوع 06

(06) : (12):



$$m = 0.5\text{Kg}$$

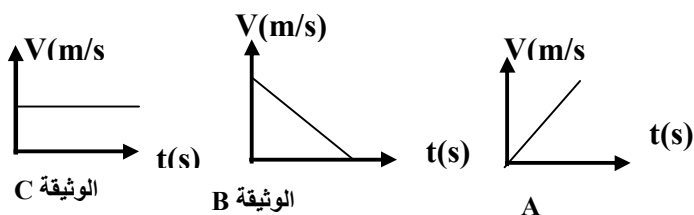
$$g = 10\text{N/Kg}$$

3

(-3 -)

(06)

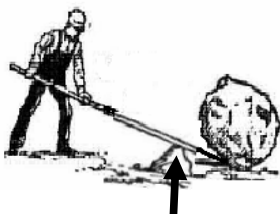
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(08):

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(3 4

الموضوع 05

(06) (12 (

(1)



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(1

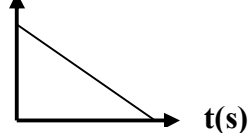
(2

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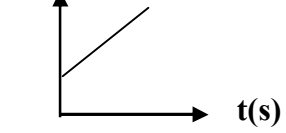
(4

V(m/s)



2

V(m/s)



1

(06)

A₁, A₂

:

B

A₁

C

A₂

B

(1

C

(2

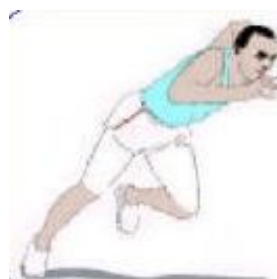
C

B

(3

(08):

1500m



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الموضوع 07

(12):

(06):

(1

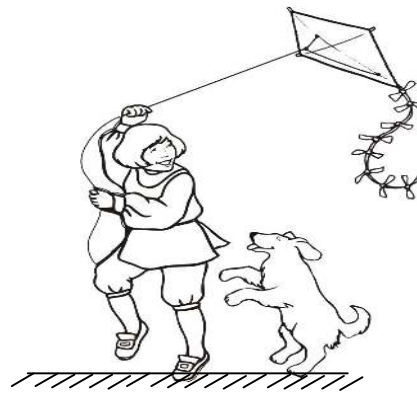
(2

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(3

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(06) :

B A

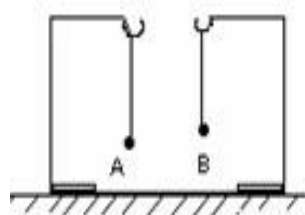
(2)

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(2

A (3
 $q_1 = 14.4 \times 10^{-10} \text{ C}$

B
 $q_2 = 4.8 \times 10^{-9} \text{ C}$
 **



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(08) :

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.(S)

(R)

الموضوع 08

(12)

(06)

Zn Cl_2

.(2) (1)

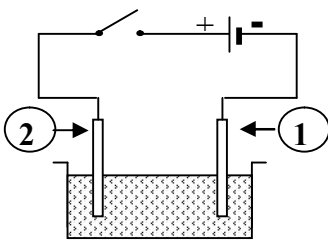
(1

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محلول كلور الزنك

(06)

(A)

.(A)

(B)

(t = 0s)

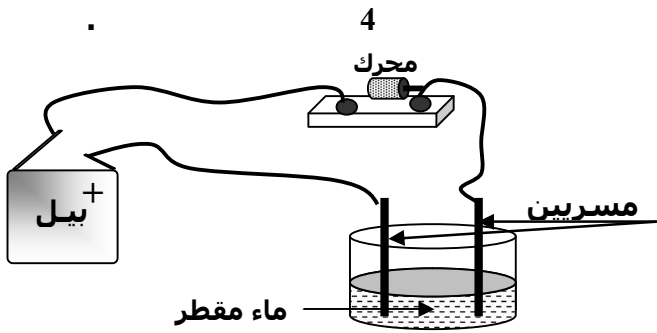
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الموضوع 09

(06) (12) :



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(06)

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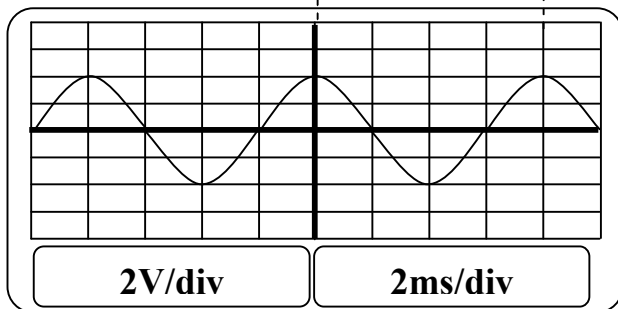
(5

(6

2V/div و 2ms/div

A

A



6

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(08) :

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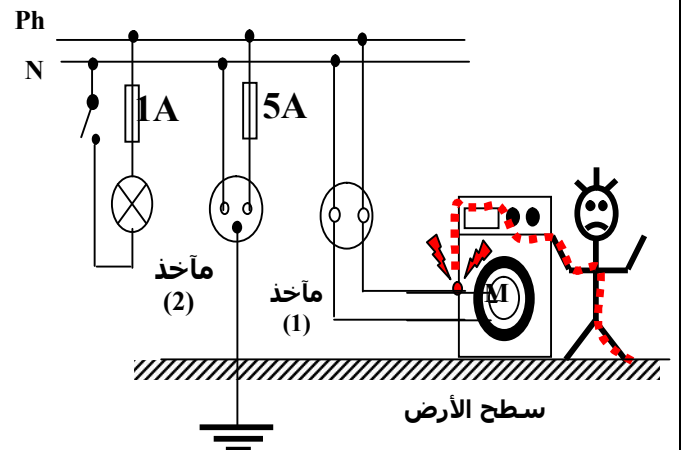
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-(2

220V (2)

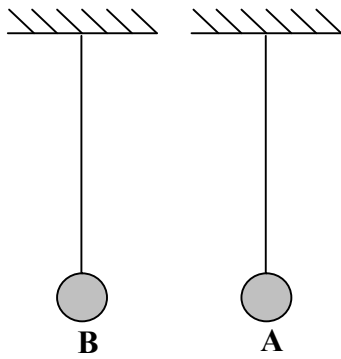
-(3



(06)

. A
. B

. (A) , (B)



(08)

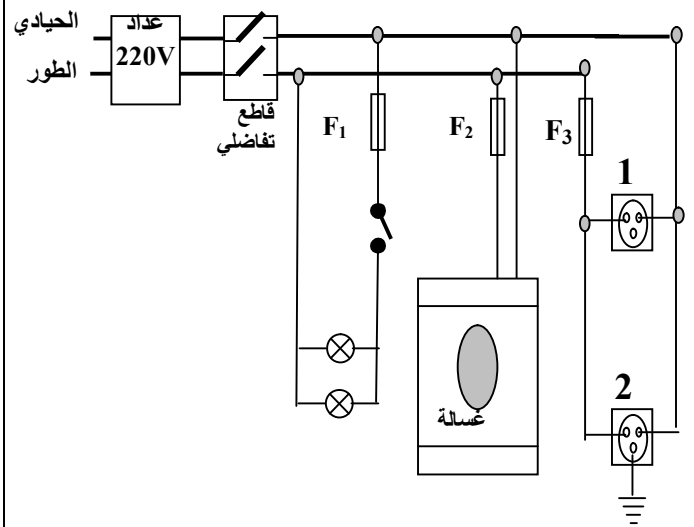
- (1)
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(3)
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(08) :

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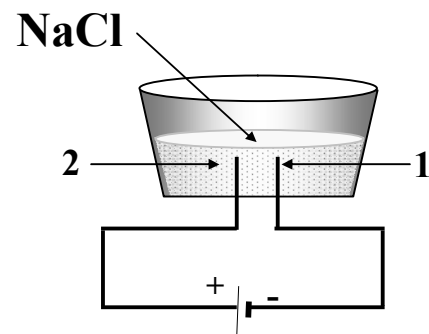
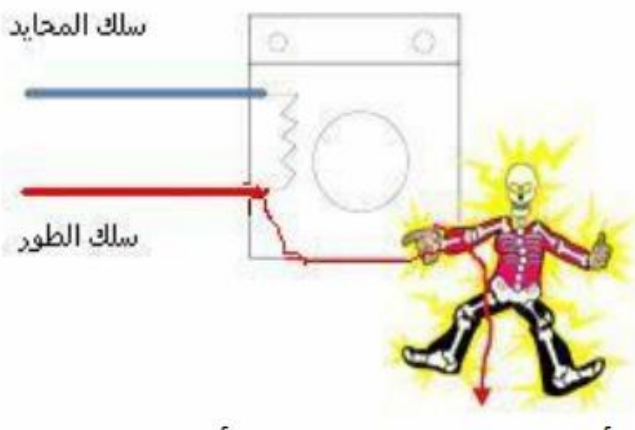
- (1
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الموضوع 10

(12)
(06)

. 2 1

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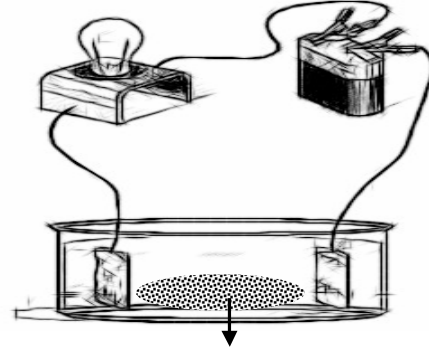
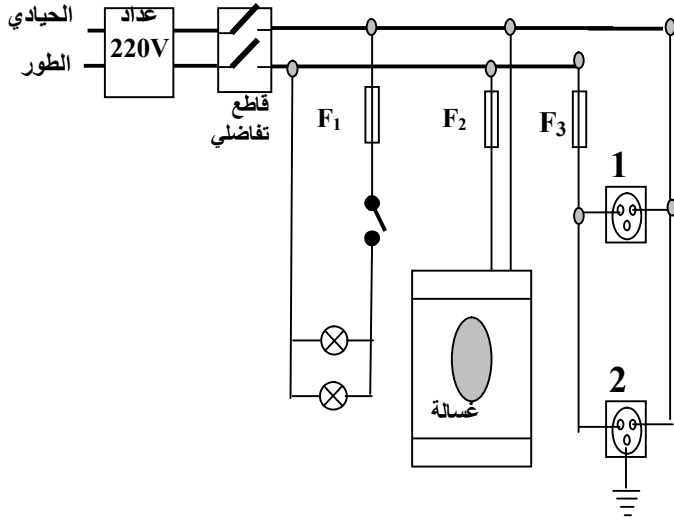
(08)

الموضوع 11

(12)

(06)

- (1
- (2
- (3



- (1
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- (4
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الموضوع 12

(12)

(06)

(CaCO_3)

(CaCO_3)

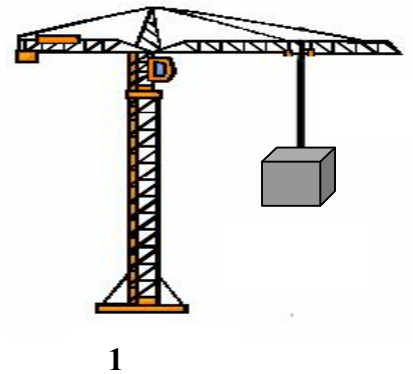
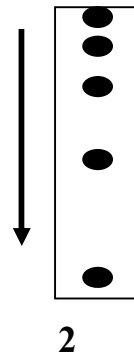
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(06)

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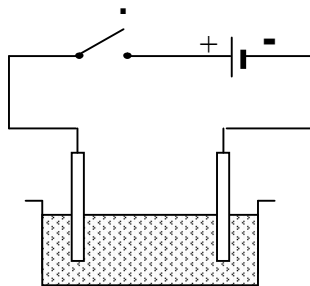
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الموضوع 13

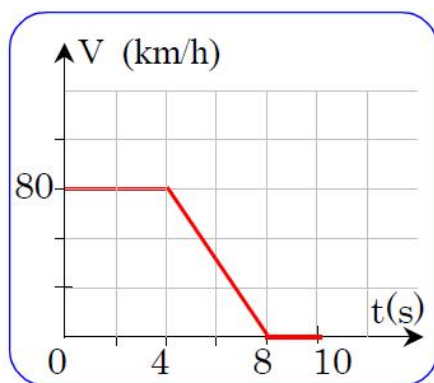
(12)

(06)



محلول كلور القصدير

(06)

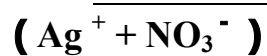


(08) :

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□

A

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A

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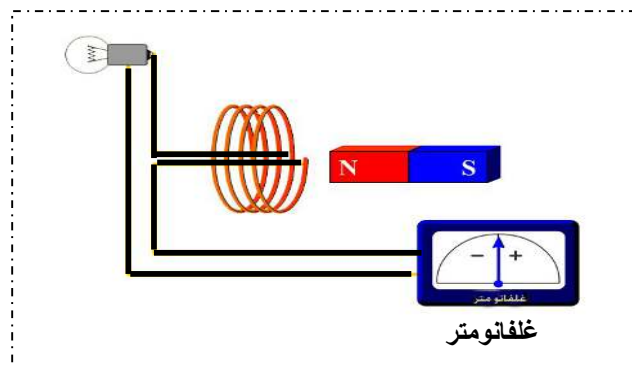
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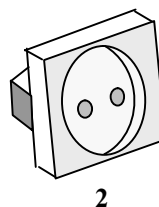
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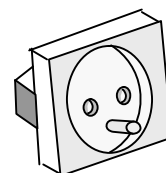
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(08)



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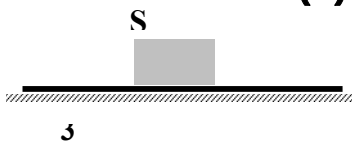
(06)

m=500g

S

- I

(3)



. S

S

g = 10N/Kg

S

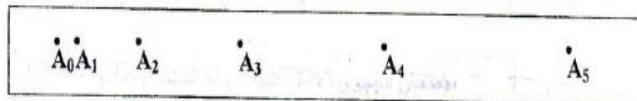
A₀

S

S

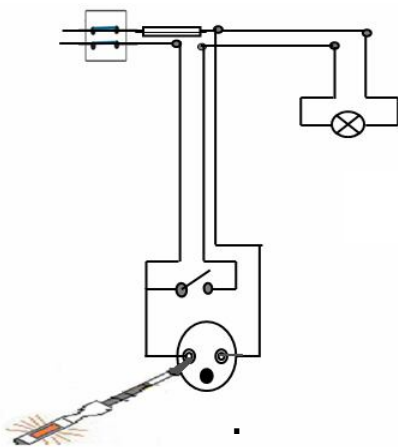
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الشكل 4

(08) :



4

(1
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A

(Na⁺ + OH⁻)

(1
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(3

(4

. A

(Na⁺ + OH⁻)

(Ag⁺ + NO₃⁻)



الموضوع 14

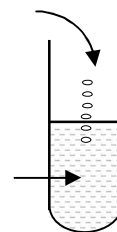
(12) :

(06) :

Zn

(I

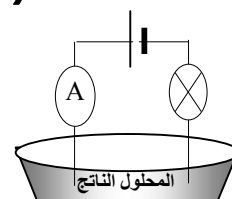
(1)



الشكل 1

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(II

.(2)



الشكل 2

(08) :

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Ph N

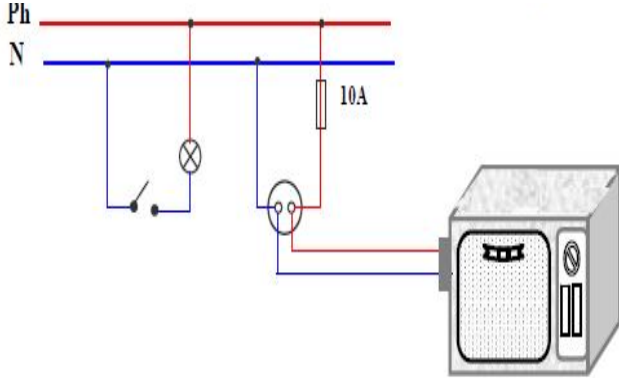
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الموضوع 15

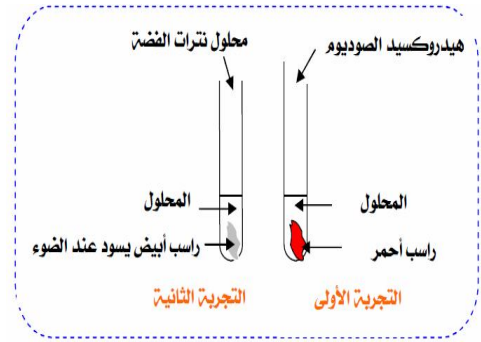
(12)

(06)

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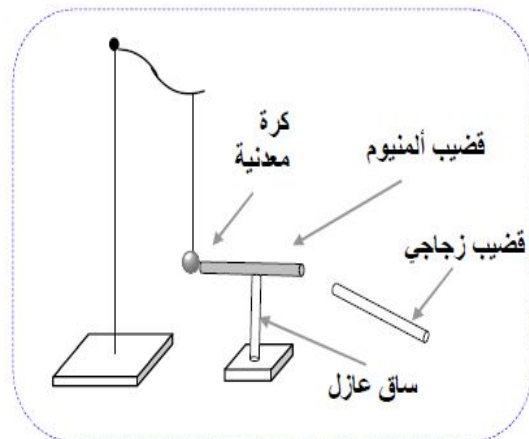


(06)

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- II

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-III

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.PbCl₂

(

(Ag⁺+NO₃⁻)

الموضوع 17

(12)

(06)

.X

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(2

(3

.X

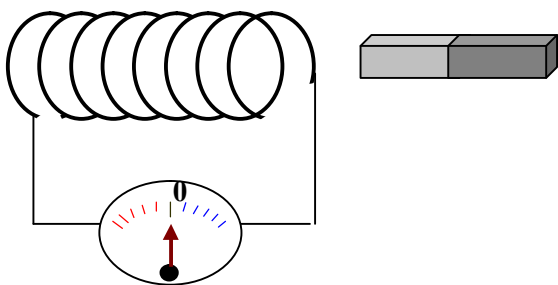
(4

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(06)

(1)



وثيقة : (1)

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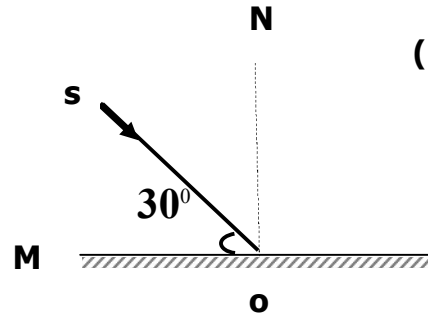
(06)

. 60Cm

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10°

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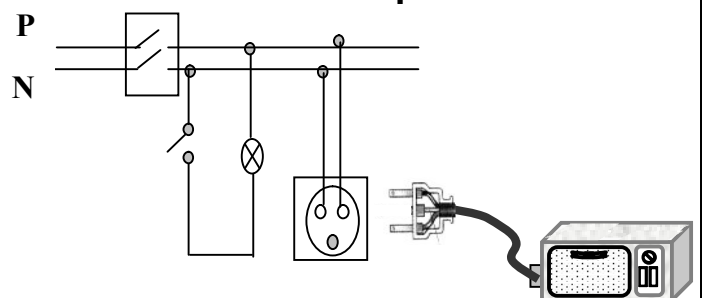
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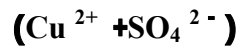
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الموضوع 18

(12):

(06):

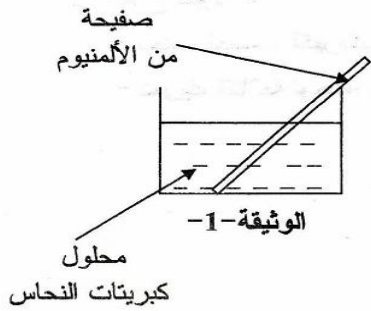
Al



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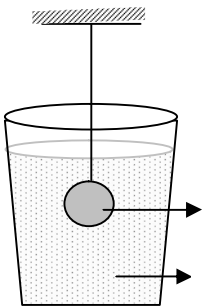
(06):

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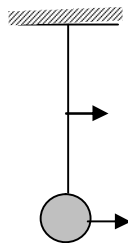
(1

(2

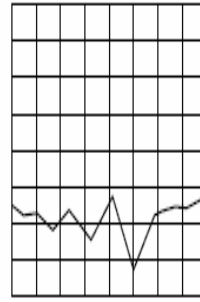
2



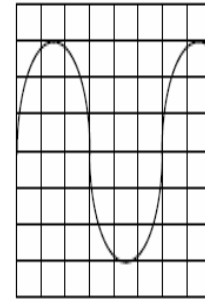
2



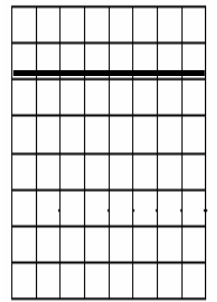
1



المخطط 3



المخطط 2



المخطط 1

(08)

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8A	1A	3A	7A	9 A	

(1

(2

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(06)

M

SI

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(l)

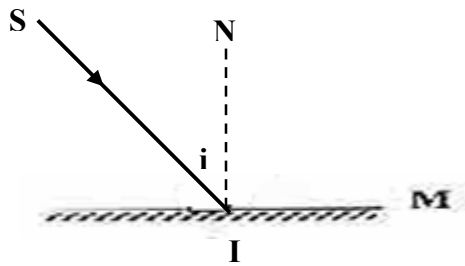
30°

(i)

(r)

15°

M



(08) :

(08) :

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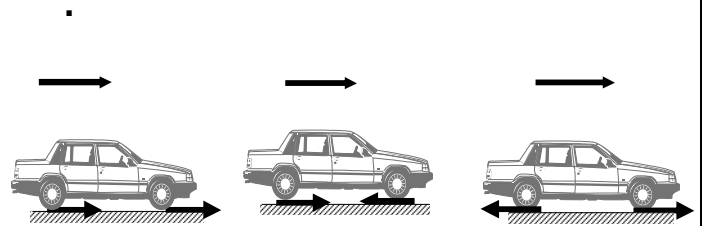
(1

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(4

(5



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(2

الموضوع 19

(12)

(06)

$(H^{+} + Cl^{-})$

. Zn

H_2

(1

(2

(3

(4

(1

(2

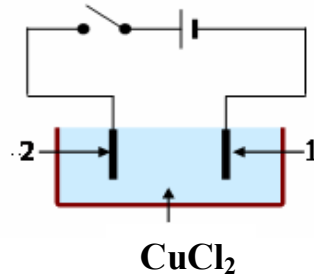
(3

الموضوع 20

(12)

(06)

Cu Cl_2



CuCl_2

(1) (2)

(1)

(2)

(3)

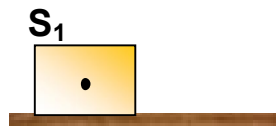
(06)

(S₁)

(1)

(S₁)

1-



$P = 20\text{N}$

(S₂)

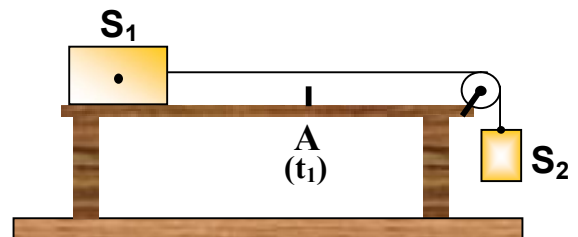
(S₁)

(2)

-2-

(S₁)

**



-2-

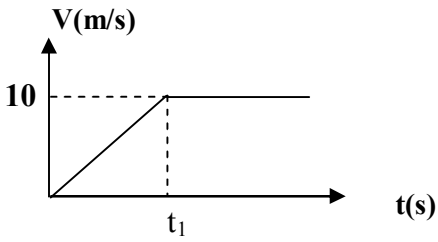
(A)

(S₁)

(3)

(t₁)

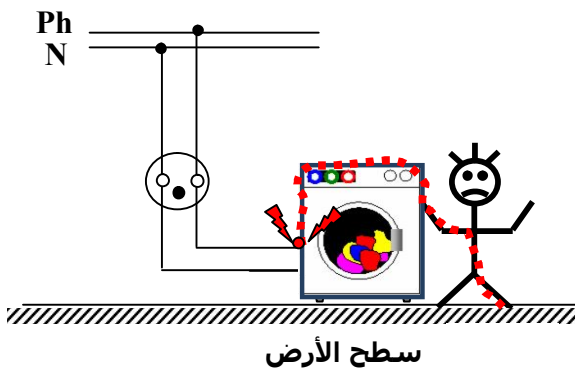
(S₁)



(S₁)

(08) :

10A 220v



(1

.*

(2

(3

حل المذيع 02

(12)
(06) :

01..... (1
:

01..... (2

01..... *

01..... :

01..... +

01..... :

01..... *

01..... *

(06) :

1.5..... (1

(0 - t₁)

(t₁ - t₂)

(t₂ - t₃)

01..... (2

(t₁ - t₂) (0 - t₁) :

(3

-

01..... -

01..... :

1.5..... F_{s/r}

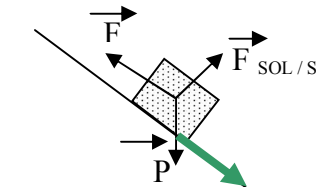
01..... v = 100 Km/h : t₂ :

(08)

01..... (1

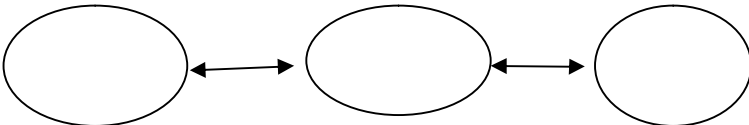
01..... :

02..... (2



01..... :

02..... (() (4



01..... - -

1

حل المذيع 01

(12)
(06)

01..... (1

01..... *

01..... *

01..... (2

01..... (3

01..... :

01..... *

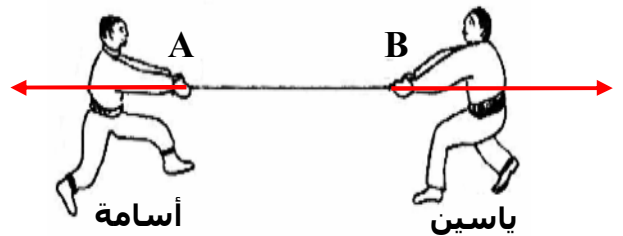
01..... *

(06)

04..... (1

F ₂	F ₁	
A	B	
600 N	800 N	

01..... (2



(3

01.....

(08)

02..... :

02..... :

02..... :

- - **

02..... -

حل المذيع 04

(12)

(06)

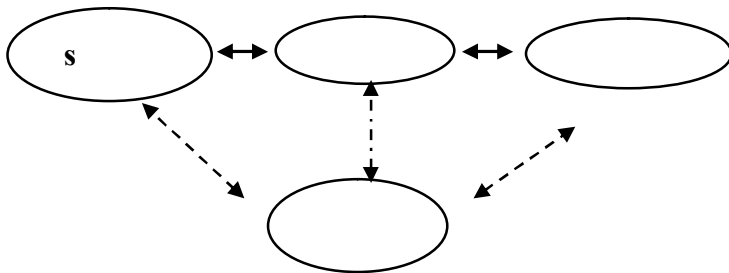
(s)

(1

02.....

	(s)
	(s)

1.5



(3

. 3900N

01.....

**

0.5..... $P = m \times g$

*

$$P = 400 \text{ Kg} \times 10 \text{ N/Kg} \quad P = 4000 \text{ N}$$

01.....

(s)

(06)

01.....() : (1)

(1

01..... :

(2

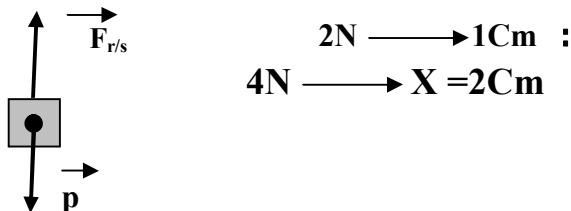
02.....

(3

4N			G	p

(4

01.....4N



(5

0.5..... $P = m \times g$ $m = p/g$ $m = 4/10$

0.5..... $m = 0,4 \text{ Kg}$

حل المذيع 03

(12)

(06) :

01..... $m = 1000 \text{ Kg}$

(1

01..... :

p m

(2

01..... $p = m \times g$

1.5.....

**

(2	/		

1.5..... 1.6 N/kg

(3

$p = m \times g$:

**

$p = 1000 \times 1.6$:

1600 N :

(06) :

01

(1

01.....()

(2

1.5.....

2.5..... (3

(08)

01

:

(1

1.5

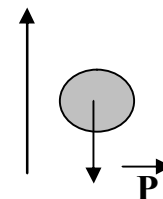
**

1.5

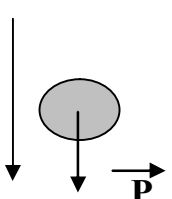
03.....

(2

جهة الحركة



جهة الحركة



01.....

-

-

حل الموضوع 05

(12)
(0)

02.....: (1

02.....: (2

01.....: (3

01.....: (4

01.....(1) :
01.....(2) :

(06)

: B (1

02.....
C (2

01.....
01.....

C B (3

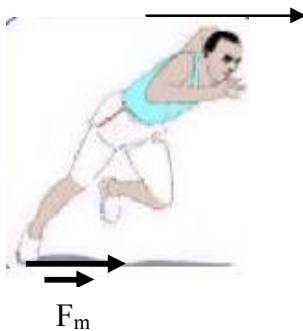
02.....

(08)

01.....() : (1

01.....
01..... (2

01..... : **
02..... (3



+ +

02.....

(08)

: (1

02.....:

*
*
*

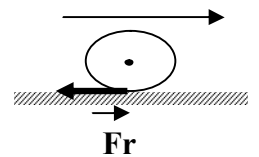
(2

1.5..... **

R

**

1.5.....S



02..... (3

*
*
*

01..... - -

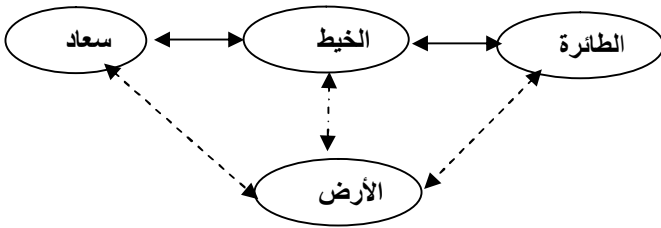


حل الموضوع 07

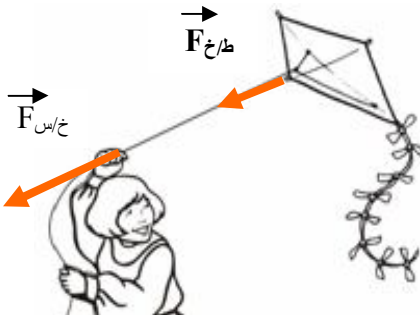
(12)
(06)

02.....

02.....



02.....

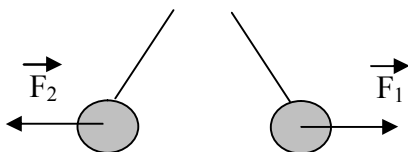


(06)

01.....

01.....

03.....



0.5.....

0.5.....

حل الموضوع 06

12)

(06)

:

01.....

01.....

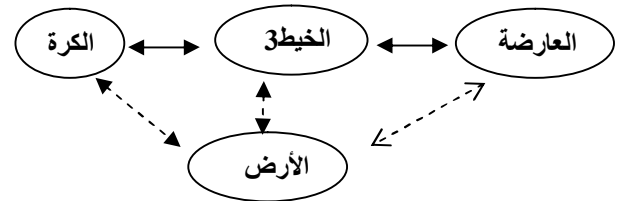
01.....

(3)

(3)

1.5..... $p=mxg$ $P=0.5 \times 10$ $P=5N$

1.5.....(-3 -)



(06)

01.....C :

01.....B :

01.....A :

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

1.5.....

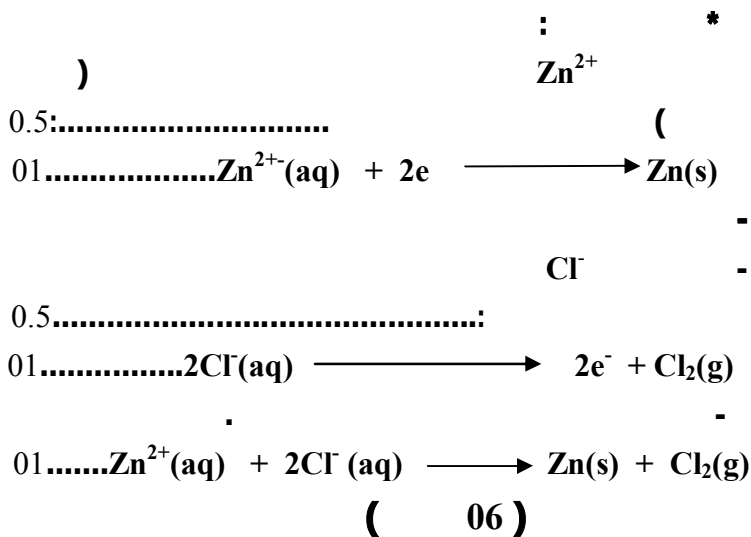
1.5.....

1.5.....

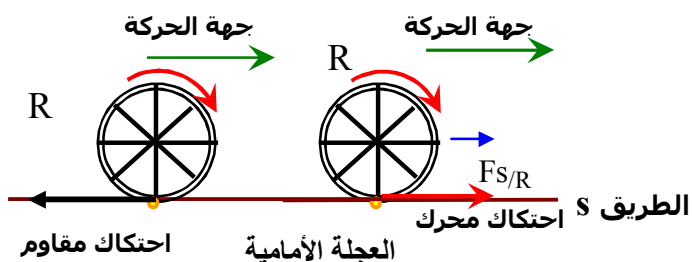
1.5.....

1.5.....

1.5.....



..... (A)
..... [t = 30s t = 0]
..... () [t = 60s t = 30]
..... (B)
..... () [t = 60s t = 0]
..... : (t = 0s)
..... 0 m/s = (A)
..... 10 m/s = (B)
(3)
..... t = 20s
..... V = 10 m/s
..... (A)
02.....



(08)

..... (1)

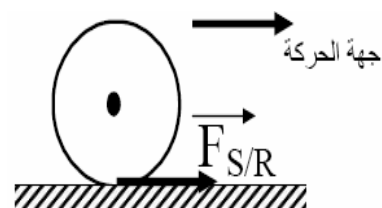
..... (2)

.....

.....

(R)

..... (S)



.....

.....

.....

01.....

حل المراجعة 08

(12)

(06)

01..... (1)

	(1)
	(2)

01..... (2)

	Zn^{+2}
	Cl^-

(3)

(06)

01..... : (1)
01..... (2)
: (3)
0.5..... : 2ms/div
0.5..... : 2V/div
0.5..... (4)
0.5.....() :
01..... A (5)
.() (6)
0.5..... : *
: () *0.5.....

(08)

: (1)
0.5..... F₁ *
0.5..... *
0.5..... (1) *
0.5..... *
(2)
02..... (3)
(2)
01..... *
01.... *
- - -
02..... -



: (08) :

(1)
01... ()
(2)
: : -
 $P=U \times I$
01...
 $I = \frac{2200}{220} = 10A$. $I = \frac{P}{U}$
01.....
01..... 10A
(3)
02.....
:
.
.
01..... - -

مل المذروع 09

(06)

(12)

-(1)
01.....
-(2)
.
01.....

Cl ⁻		
Na ⁺		

02..... -
10 -
01.....
:
01.....

حل المذخوع 11

(06)

(12)

01..... (1

.. (2

01.....

01..... (3

02..... SO_4^{2-} Al^{3+} (4

(5

0.5..... $Al_2(SO_4)_3$

0.5..... $(2Al^{3+} + 3SO_4^{2-})$.

(06)

01..... : (1

0.5..... *

0.5..... *

02..... : (2

(3

02.....

(08)

0.5..... (1

:

0.5..... F_1 *

0.5..... *

0.5.. 1 *

0.5..... *

0.5..... : (2

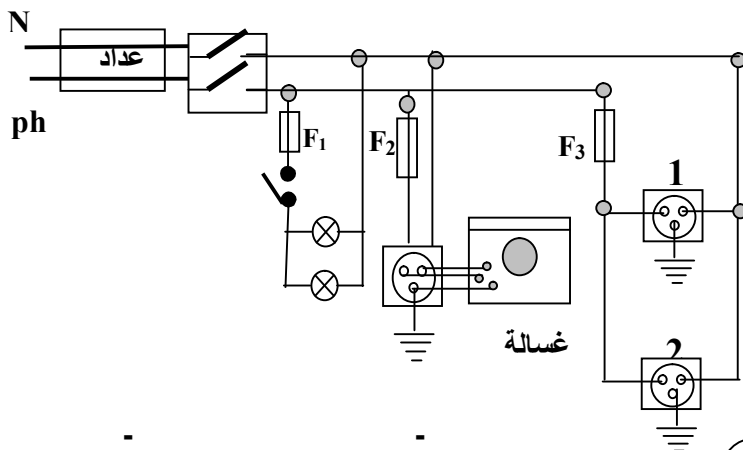
0.5.. F_1 *

0.5..... *

0.5.... ① *

0.5..... *

02..... (3



1.5.....

حل المذخوع 10

(06)

(12)

01..... (1

	1
	2

01..... : (2

Cl^- Na^+

01..... $Na^+ + e^- \rightarrow Na$ (3

01..... $2Cl^- \rightarrow Cl_2 + 2e^-$:

01. $2Na^+ + 2Cl^- \rightarrow 2Na + Cl_2$ (4

01..... (5

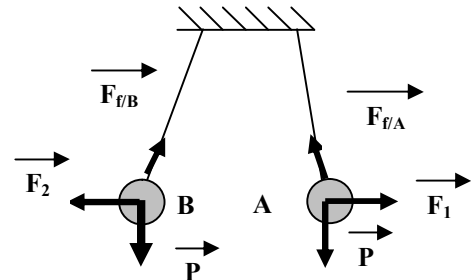
(06)

01..... : (1

0.5... : (2

1.5..... (3

03..... (4



(08)

0.5... : (1

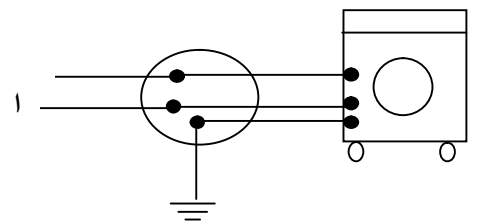
0.5..... * :

0.5..... *

0.5..... : (2

01..... +

02.....



01..... (3

02.....

1.5.....

التمرين 13

(12)

(06)

01.(Sn⁺² + 2 Cl⁻)

(1

(2

1.5....Sn⁺² + 2é → Sn

*

1.5....2 Cl⁻ → Cl₂ + 2é

*

02..... Sn⁺² + 2 Cl⁻ → Sn + Cl₂

(06)

(1

01..... (0s-4s)

01..... (4s-8s)

01..... (8s-10s)

02..t=6s (4s-10s) (2

(3

01..... (8s-10s)

(08)

01..... Cl⁻ :

(1

01..... AgCl (2

(3

01..... Ag⁺ + Cl⁻ → AgCl

01.... Fe⁺² :

(1

(2

01..... Fe(OH)₂

(3

01..... Fe⁺² + 2OH⁻ → Fe(OH)₂

(4

01..... (Fe⁺² + Cl⁻)

01.....

التمرين 12

(12)

(06)

01.....HCl (1

01.....(Ca²⁺ + CO₃²⁻) (2

01..... : (3

01.....H₂ : (4

02.....(Ca²⁺ + CO₃²⁻) + 2(H⁺ + Cl⁻) (4

aq CO₂ + (Ca²⁺ + 2Cl⁻) + H₂O
g aq L

(06)

(1

02.....

0.5..... (2

01.....~ (AC) : (3

0.5..... - (4

: (5

02.....

(08)

(1

01..(1)

01..... : -

01..... :

01..... :

02.....: (2

**

**

02.....

(08)

01..... (1

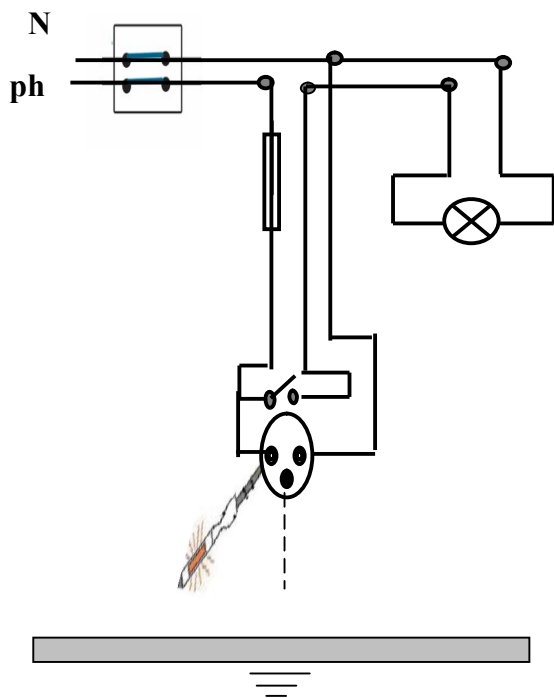
01..... : -

∴ (2

01..... *

01 *

03.. (3



01..... -



حل الموضوع 14

(12)

(06)

(I

-1

0.5.....($Zn^{2+} + 2Cl^-$) :

-2

0.5.....(H_2)

: -3

01..... $Zn + 2(H^+ + Cl^-) \rightarrow H_2 + (Zn^{2+} + 2Cl^-)$

(II

: -1

01.....

: -2

01..... $Zn^{2+} + 2 Cl^- \rightarrow Zn + Cl_2$

(III

-1

0.5 ($Ag^+ + NO^-$)

0.5.... Cl^- : -2

. (3

$(Zn^{2+} + 2Cl^-) + 2(Ag^+ + NO^-) \rightarrow$

$2(Ag^+ + Cl^-) + (Zn^{2+} + 2NO^-)$

(06)

(I

∴ S -1

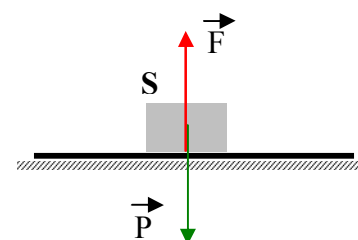
01..... ()

: -2

02 $P = m \times g$; $P 0.5 \times 10 = 5N$

S -3

01.....



(II

01..... **

01.....

: *

حل المذرع 16

(12):

(06) :

0.5..... :

- I

(1

(2

0.5..... :

0.5.....

-II

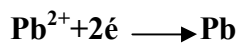
0.5.(Pb²⁺ + 2Cl⁻)

(1

(2

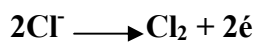
:

01.....



-

01.....



-

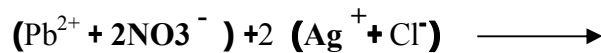
-III

(1

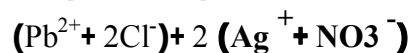
:

0.5..... Cl⁻

(2



1.5.....



(06) :

01 120Cm

(1

:

01.....

(2

01..... $\hat{\alpha}_1 = 60^\circ$

-

01..... $\hat{\alpha}_r = 60^\circ$

-

01.....

=

:

* (3

0.5.....

$$\beta = 2 \alpha$$

:

0.5.....

$$\begin{aligned} B &= 10 \times 2 \\ B &= 20^\circ \end{aligned}$$

حل المذرع 15

(12)

(06)

02 Fe³⁺

(1

02..... Cl⁻

(2

01.....

(3

01..... (Fe³⁺ + Cl⁻)

(06)

01.....

(1

01..... :

(2

:

02.....

02.....

(3

(08) :

:

(1

0.5.....

N. :

*

0.5.....

: Ph

*

(2

02..... 15 A

()

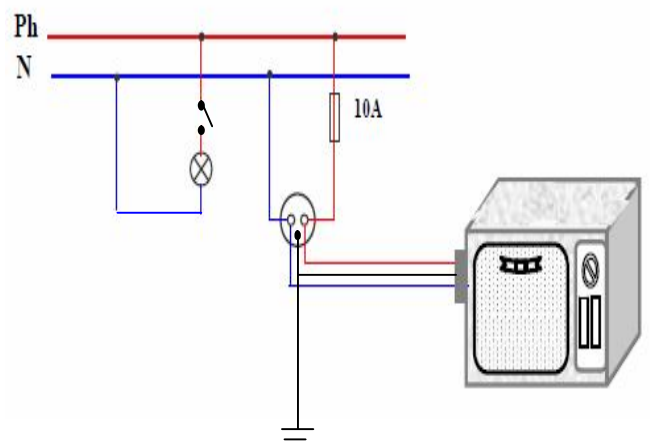
:

(3

02.....

02.....

(4



01.....

(06)

(1) :

(1

01.....

01.....

:

(2

(3

:

01.....

01.....2 :

:1

-

01.....

01.....

:

(08)

:

(1

:

02.....() 25A

(2

02.....

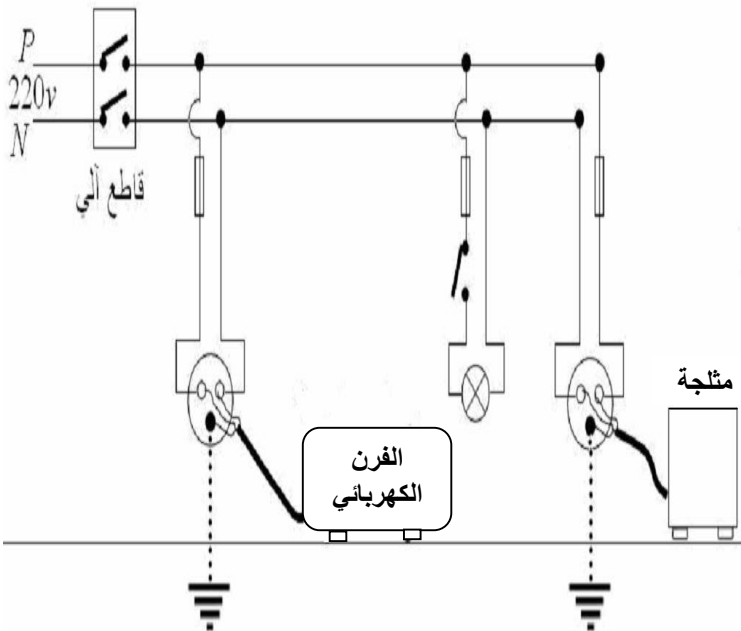
:

. 30A

. 28A

:

03..... :



01.....

-

(08):

:

01..... : (1

-(2

()

1.5.....

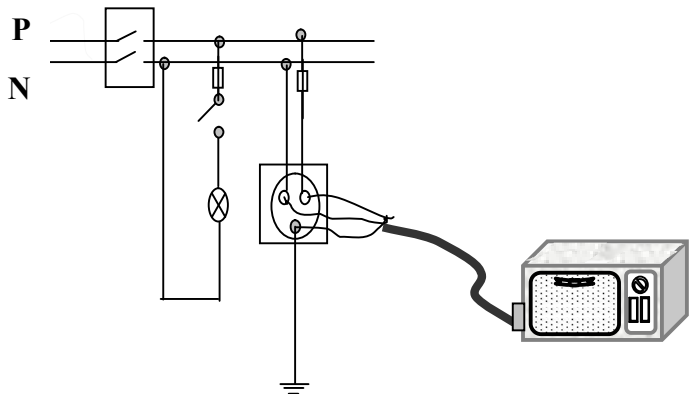
-(3

)

1.5.....(

03.....

-(4



-

-

-

01..... -

حل الموضوع 17

(12)

(06)

(1

01.....

01.....H₂ : (2

(3

01.....Fe⁺² :

01..... : (4

:

(5

01.....

:

01.....

حل الورقة 19

(06) (1)

1.5..... (1)

Cl: H⁺ Zn

(2)

0.5.....(Zn²⁺ + 2Cl⁻)

(3)

1.5..... Zn + (H⁺ + Cl⁻) → H₂ + (Zn²⁺ + 2Cl⁻)

S Aq g aq

(4)

0.5..... :

0.5.....(Zn²⁺ + 2OH⁻):

1.5..... (Zn²⁺ + 2Cl⁻) + 2(Na⁺ + HO⁻) →

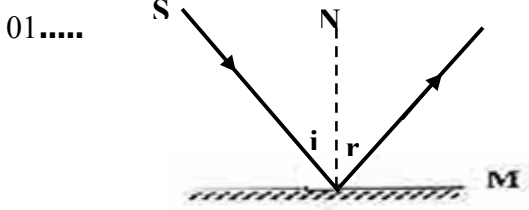
2 (Na⁺ + Cl⁻) + (Zn²⁺ + 2HO⁻)

(06)

0.5..... : SI (1)

0.5..... : I (2)

01..... : (I) S (3)



0.5..... r = 30° : (4)

0.5..... = : (5)

15° M

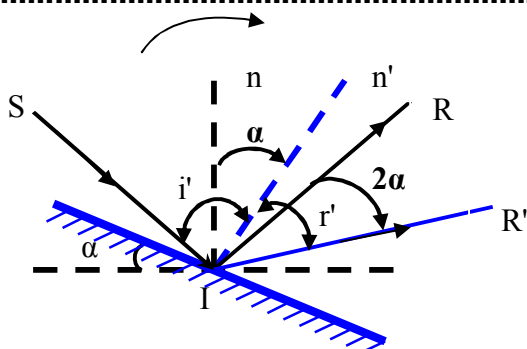
0.5..... 15° -

0.5... 30°:

(α) :

0.5.....(2α) *

1.5.....:



حل الورقة 18

(06): (12)

0.5..... - (1)

0.5..... - (2)

0.5..... - (3)

03 (2)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

03 (3)

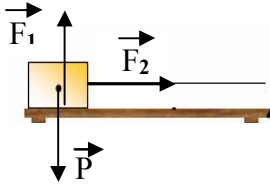
03 (3)

03 (3)

(06)

02..(S₁)

(1

(S₁)

(2

01.....P = 20N

(3

01.....

(0_s-t₁)

*

01.....

(t₁-t₂)

*

(S₁)

-

01.....V=10m/s

(08) :

:

: (1

0.5.....

*

0.5.....

*

:

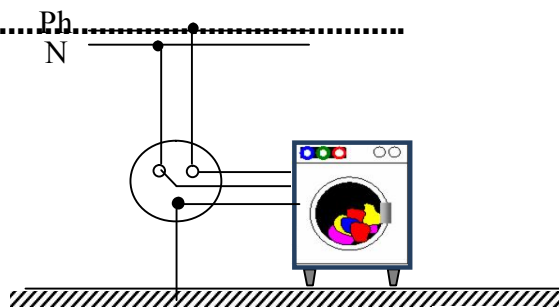
(2

01.....

*

01.....

*

01.....Ph
N

سطح الأرض

-(3

01.....

(

01..... 10A :

(

:

01.....10A

-

-

-

01.....

-

(08) :

:

01..... (1

:

01.....

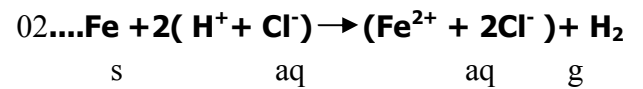
01..... (2

:

(3

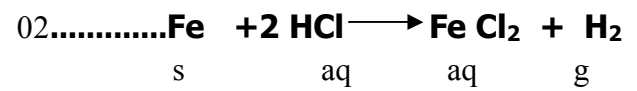
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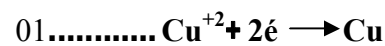
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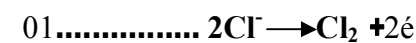
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