شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية

مراجعة على الوحدة الخامسة مع أسئلة الامتحانات السابقة

تاريخ نشر الملف على موقع المناهج: 2023-12-21 09:35:01 | اسم المدرس: عبد الرحمن عصام

التواصل الاجتماعي بحسب الصف الثاني عشر المتقدم

روابط مواد الصف الثاني عشر المتقدم على تلغرام

التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب الصف الثاني عشر المتقدم والمادة فيزياء في الفصل الثاني

1	كتاب الطالب المجلد الثاني
2	مراجعة شاملة نهاية الفصل
3	مراجعة نهائية قبل امتحان نهاية الفصل الثاني
4	مراجعة عامة وفق الهيكل الوزاري
5	الحل التفصيلي للمراجعة النهائية

Charge الشحنة (C)

Current (A) التيار

$$i = \frac{q}{t}$$

$$i = \frac{dq}{dt}$$

$$q = \int dq = \int_0^t i\,dt$$

Time الزمن (S)

Current التيار (A)

Current density (A/m^2) كثافة التيار

$$J = \frac{i}{A}$$

$$i = \int \vec{J} \cdot d\vec{A}$$

Area المساحة (m^2)

Length طول السلك (m)

Resistance (Ω) المقاومة

$$R = \rho \frac{L}{A}$$

Resistivity (Ω.m) المقاومة النوعية

Area المساحة (m^2)

Potential difference (V) فرق الجهد

Resistance (Ω) المقاومة

$$R = \frac{\Delta V}{i}$$

Current التيار (A)

conductance التوصيل

(S) Ω^{-1}

siemens

$$G = \frac{1}{R}$$

Resistance (Ω) المقاومة

conductivity الموصلية الكهربائية

$(\Omega.m)^{-1}$

$$\sigma = \frac{1}{\rho}$$

$$\rho = \frac{E}{J}$$

Resistivity (Ω.m) المقاومة النوعية

Resistors in Prallel مقاومات على التوازي

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_{12}} + \frac{1}{R_3}$$

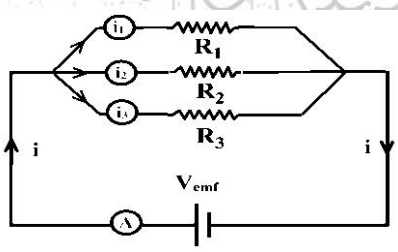
$$R_{eq} = \left(\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}\right)^{-1}$$

$$\Delta V_{emf} = \Delta V_1 = \Delta V_2 = \Delta V_3$$

$$i = i_1 + i_2 + i_3$$

$$R_{eq} = \frac{R \text{ احداها}}{n \text{ عددها}}$$

Identical resistors مقاومات متساوية



$$\Delta V = IR_{eq} = I_1R_1 = I_2R_2 = I_3R_3$$

Resistors in Series مقاومات على التوالي

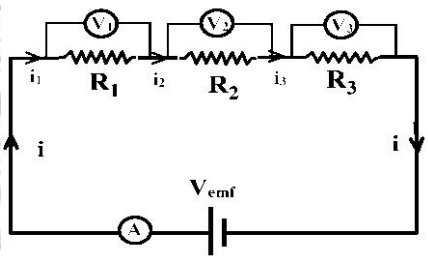
$$R_{eq} = R_1 + R_2 + R_3$$

$$\Delta V_{emf} = \Delta V_1 + \Delta V_2 + \Delta V_3$$

$$i = i_1 = i_2 = i_3$$

Identical resistors مقاومات متساوية

$$R_{eq} = n \text{ عددها} \times R \text{ احداها}$$



$$I = \frac{\Delta V}{R_{eq}} = \frac{\Delta V_1}{R_1} = \frac{\Delta V_2}{R_2} = \frac{\Delta V_3}{R_3}$$

$$V_{emf} = V_i + V = I\,R_i + I\,R = I\,(R_i + R)$$

$$\therefore P = i.\Delta V = i^2R = \frac{(\Delta V)^2}{R}$$

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Choose the most appropriate correct answer for each of the following

1 Most of the car batteries are rated in a unit called "ampere-hours". What does this unit represent?

A electric current
B Capacitance
C electric charge
D electric potential difference

2 Battery written on it (9mAh). How much time is required for this battery by providing us with a constant current of intensity (0.4mA)?

A 22.5h
B 3.6h
C 2.5h
D 5.0h

3 Car battery written on it (60Ah), How much constant current that battery can provide us if it works continuously for (24h) until the battery is discharged?

A 20.5A
B 3.0A
C 2.5A
D 0.02A

4 A bolt of lightning has an electric current of (3.5×10^4A) when hits the ground. If the lightning lasts for (14μs) , the amount of charges that is transferred to the ground is:

A 0.50 C
B $4.9X10^5$ C
C $4.90X10^2$ C
D 49.0 C

5 Charges are flowing through a wire of cross-sectional area ($1.5cm^2$). The quantity of charge varies with time according to the function ($q=2t^2+3t$) where the amount of charge is calculated in coulombs and the time is in seconds.
What is the current density through the wire at t = 3.5s

A $1.1\times10^5 A/m^2$
B $7.6X10^6 A/m^2$
C $2.3x10^5 A/m^2$
D $1.6x10^7 A/m^2$

6 The number of charges that flow through a wire of radius (2.0 mm) each second is (4.5×10^{19}) charges. Calculate the charge density of this wire

A $7.50x10^5 A/m^2$
B $5.7X10^5 A/m^2$
C $4.90X10^5 A/m^2$
D $3.30x10^5 A/m^2$

7 What is the current passing through a conductor with radius of (3.1mm) , if the current density through this conductor is ($5.2 A/m^{2)}$?

A 1.6×10^{-4} A
B 3.5×10^{-3} A
C 5.1×10^{-2} A
D 2.2×10^{-4} A

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7 Which of the following equations correctly represent the electric current in terms of the current density?

A $i = \int \frac{1}{J} \cdot dA$

B $i = \int \frac{1}{J^2} \cdot dA$

C $i = \int J^2 \cdot dA$

D $i = \int J \cdot dA$

8 a measure of how strongly a material opposes the flow of electric is

A The resistivity, ρ
B The resistance, R
C Conductivity (σ)
D conductance, G,

9 the ability of materials to conduct is

A The resistivity, ρ
B The resistance, R
C Conductivity (σ)
D conductance, G,

10 Conductance has the SI derived unit of

A siemens (S)
B Ohm Ω
C $(\Omega.m)^{-1}$
D A+C

11 The units of resistivity ρ is

A siemens (S)
B $\Omega.m$
C Ω/m
D m/Ω

12 What is the resistance (R) of a silver wire (ρ=1.62×10-8 Ω.m), has a length of(3.0 m) and a radius of(52mm)?

A $5.7\times10^{-6}\ \Omega$
B $3.4\times10^{-6}\ \Omega$
C $2.6\times10^{-6}\ \Omega$
D $1.9\times10^{-6}\ \Omega$

13 How will the resistance of a copper wire change if its length is tripled (without changing in its cross-sectional area)?

A The resistance will decrease by 1/3
B The resistance will increase by 3 times
C The resistance will decrease by 1/9
D The resistance will not change.

14 How will the resistance of a copper wire change if its cross-sectional area is doubled?

A The resistance will decrease by 1/4
B The resistance will increase by 4 times
C The resistance will decrease by ½
D The resistance will increase by 2

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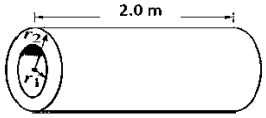
15 How will the resistance and current that flowing through a copper wire change if the radius of the wire is doubled?

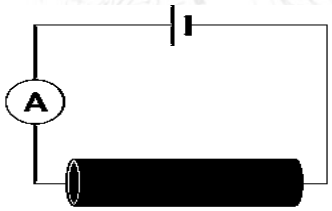
A The resistance will decrease by 1/4 , The current will increase by 4 times
B The resistance will increase by 4 time,, The current will decrease by 1/4 times
C The resistance will decrease by 1/2 The current will increase by 2 times
D The resistance will increase by 2, The current will decrease by 1/4 times

16 The (2.0 m) length hollow silver tube shown in the figure has inner radius of (2.0 cm) and outer radius of (3.0 cm) what is the resistance of this conductor? ($\rho = 1.62\times10^{-8}\ \Omega.m$)



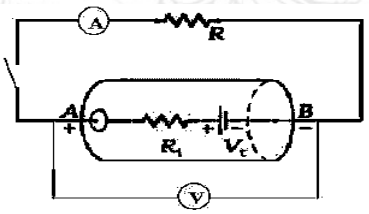
A $1.0\times10^{-5}\ \Omega$
B $2.1\times10^{-5}\ \Omega$
C $3.6\times10^{-5}\ \Omega$
D $4.4\times10^{-5}\ \Omega$

17 A Nichrome wire with length of (1.2 m) and (1.0 mm) radius is connected to (12 V) battery as shown in the figure, what should be the ammeter reading? The resistivity of silver is ($\rho = 108\times10^{-8}\ \Omega m$)



A 29 A
B 21 A
C 19 A
D 12 A

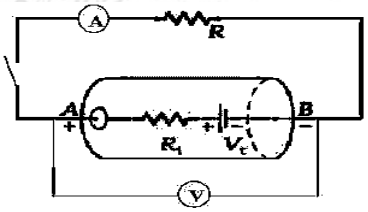
18 In the previous figure if the reading voltmeter when the circuit is open (12v) and when the circle was closed a voltmeter reading became (11.5v) and reading of ammeter (2A)



What is the internal resistance of the battery?

A 6.0 Ω
B 0.25 Ω
C 5.75 Ω
D 11.75 Ω

19 Consider a battery that has ($V_t = 12.0\ V$) when it is not connected to a circuit, When a (10.0 Ω) resistor is connected with the battery, the potential difference across the battery's terminals drops to (10.9 V).



What is the internal resistance of the battery?

A 1.0 Ω
B 2.3 Ω
C 120.0 Ω
D 109.0 Ω

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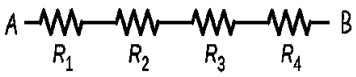
20 The quantity 1mAh is equal to

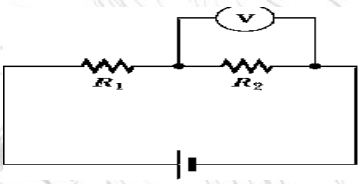
A 3.6As
B 3.6C
C 3.6A
D A+B is correct

21 How will the equivalent resistance between the two-points (A, B) changes, if we remove one of the resistors from the set shown in the figure?



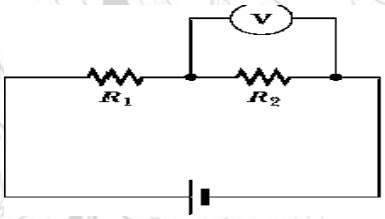
A It will increase
B It will decrease
C It will not change
D The given information is not enough to decide

22 In the opposite circuit (R1 =6Ω) (R2 =4Ω). And the reading of voltmeter (3v),
What is the amount of voltage drop in the resistance R1?



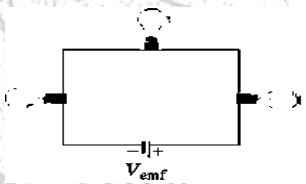
A 3.0 V
B 4.5 V
C 7.5 V
D 0.75 V

23 In the opposite circuit (R1 =6Ω) (R2 =4Ω). And the reading of voltmeter (3v),
What is the amount of total voltage Vemf for battery ?



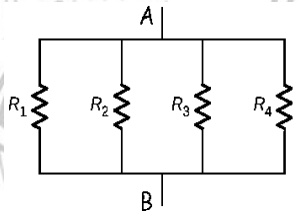
A 3.0 V
B 4.5 V
C 7.5 V
D 0.75 V

24 Three different light bulbs are connected in series with a battery that delivers a constant potential difference, V emf.
Which light bulb has the highest brightness?



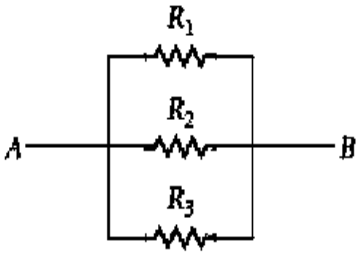
A The bulb with the lowest resistance
B The bulb with the highest current
C All of them has the same brightness
D The bulb with the highest resistance

25 How will the equivalent resistance between the two-points (A, B) changes, if we remove one of the resistors from the set shown in the figure?



A It will increase.
B It will decrease
C It will not change
D The given information is not enough to decide

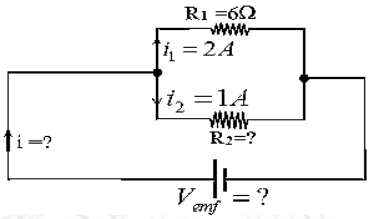
26 Three identical resistors, R1, R2, and R3, are wired together as shown in the figure. An electric current is flowing from point A to point B.



The current flowing through R2 is equal to :

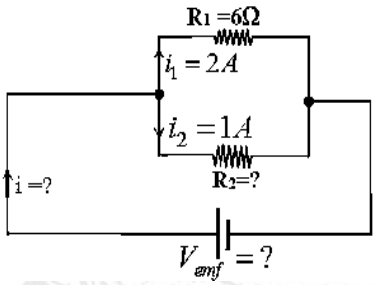
A Is three times the current through R1 and R3.
B Is a third of the current through R1 and R3.
C Is twice the sum of the current through R1 and R3.
D Is the same as the current through R1 and R3.

27 Based on the data shown on the adjacent circuit, Calculate the amount of resistance R2



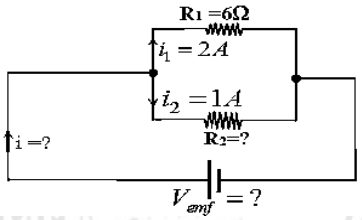
A 3.0 Ω
B 1.0 Ω
C 12.0 Ω
D 2.0 Ω

28 Based on the data shown on the adjacent circuit, Calculate the intensity of the current passing through the battery



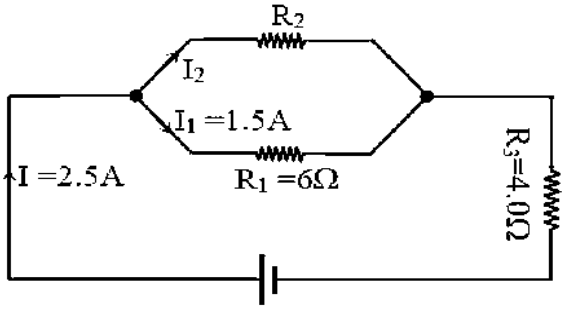
A 3.0A
B 1.0A
C 12.0A
D 2.0A

29 Based on the data shown on the adjacent circuit, Calculate electromotive force of battery V emf



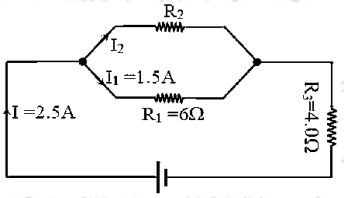
A 3.0V
B 1.0V
C 12.0V
D 2.0V

30 Depending on the electrical circuit shown in the opposite circuit and the data on it.
Calculate Battery voltage difference:



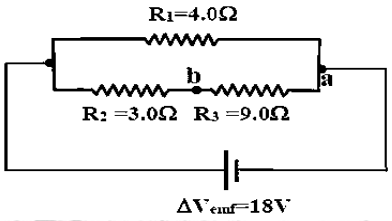
A 9.0 V
B 4.0 V
C 6.0 V
D 19.0 V

31 Depending on the electrical circuit shown in the opposite circuit and the data on it.
Calculate the amount of resistance (R2)



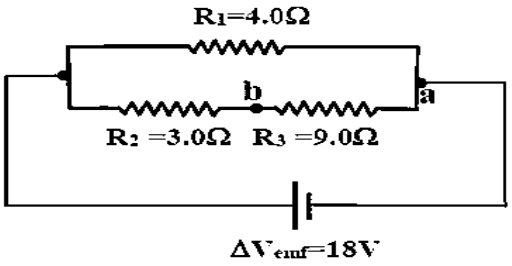
A 9.0 Ω
B 4.0 Ω
C 6.0 Ω
D 19.0 Ω

32 Depending on the circuit shown in the opposite figure, Calculate the equivalent resistance of the circuit



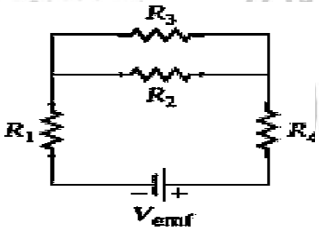
A 12.0 Ω
B 3.0 Ω
C 16.0 Ω
D 1.4 Ω

33 Depending on the circuit shown in the opposite figure, Calculate The voltage difference between the two points (a , b)



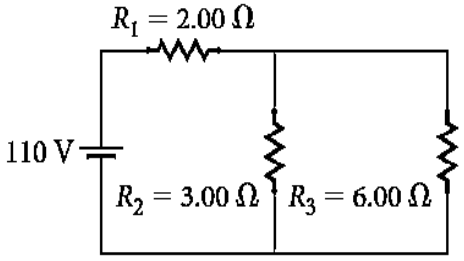
A 18.0 V
B 4.5 V
C 16.0 V
D 13.5 V

34 The circuit shown in Figure has four resistors and a battery with (Vemf = 149 V). the values of the four resistors are (R1 = 17.0 Ω, R2 = 51.0 Ω, R3 = 114.0 Ω, and R4 = 55.0 Ω)
What is the magnitude of the potential drop across R2?



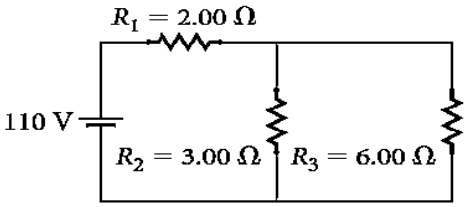
A 149.0 V
B 23.8 V
C 49.5 V
D 77.0 V

35 What is the equivalent resistance of the circuit shown in the figure?



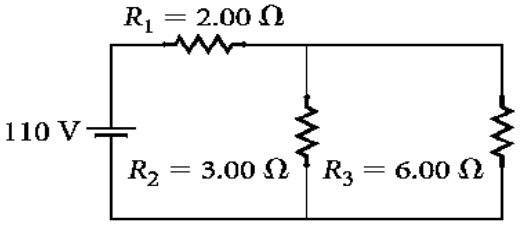
A 4.0 Ω
B 11.0 Ω
C 7.0 Ω
D 5.3 Ω

36 What is the potential drop through R3?



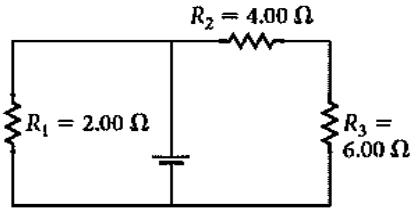
A 19.0 V
B 13.0 V
C 38.0 V
D 55.0 V

37 What is the current through R1?



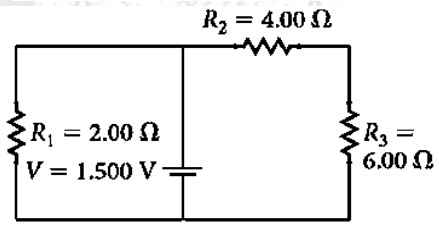
A *13.1 A*
B *15.7 A*
C *27.5 A*
D 32.6 A

38 What is the equivalent resistance of the resistors in the circuit shown in the figure?



A *12.0 Ω*
B *5.2 Ω*
C *1.7 Ω*
D 1.2 Ω

39 What is the dissipated power in R1?



A *1.1 W*
B *2.3 W*
C *3.5 W*
D 4.2 W

40 A (39 Ω) resistor is connected across a (45V) battery, How much energy is used by the resistor in 5.0 min?

A *15.6 kJ*
B *8.9 kJ*
C *2.6X10^2 J*
D 5.3X10^5 J

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