

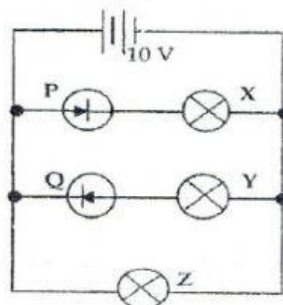
## GRADE 11 REVIEW GUIDE

Name: \_\_\_\_\_

Write the letter that corresponds to the correct on the space provided before each question.

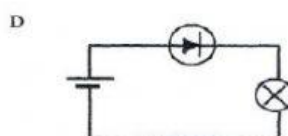
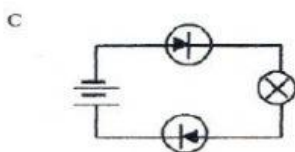
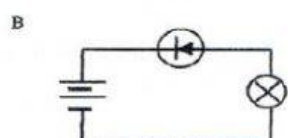
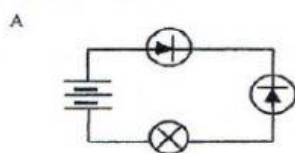
## Topic 1: Electricity

1. The diagram shows a circuit with two identical components P and Q, and three identical appliances X, Y and Z.

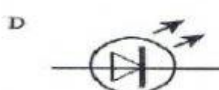


Which component is not working? A. X B. Y C. Z D. P

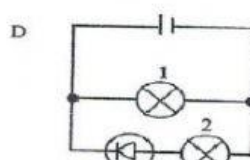
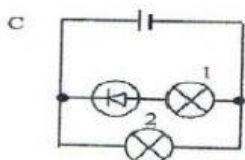
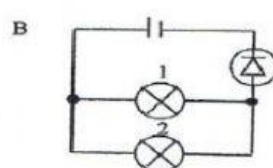
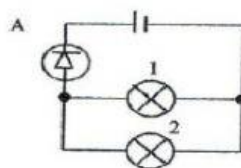
2. In which circuit will the lamp be lit?



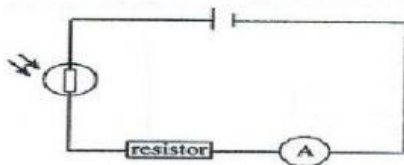
3. Which symbol represents a light emitting diode?



4. In which circuit will only lamp 1 be lit?



5. When the light-dependent resistor in the circuit is exposed to increased light intensity, the ammeter records a higher reading.



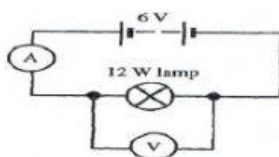
What is the reason for this?

- A light energy is being converted to electrical energy
- B light energy increases the flow of electrons in the circuit
- C light has caused a decrease in the light-dependent resistor
- D light has caused an increase in the light-dependent resistor

6. Shown is a list of electrical appliances with their voltage and current ratings.  
Which appliance will use the greatest amount of electrical energy in one second?

	device	voltage (V)	current (A)
A	flash light	6	2.0
B	car light	12	1.2
C	boat light	24	0.5
D	clock radio	120	0.1

7. The diagram shows an electric circuit consisting of a 6 V battery, a 12 W lamp, an ammeter and a voltmeter.



What will be the reading on the ammeter and voltmeter?

	ammeter	voltmeter
A	0.5 A	6 V
B	2.0 A	6 V
C	0.5 A	12 V
D	2.0 A	12 V

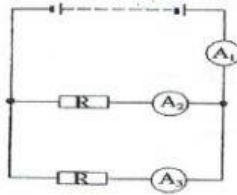
8. A kitchen appliance is rated at 120 V, 360 W. Which of the following would be the best fuse to protect the appliance?

- A 1 A
- B 3 A
- C 5 A
- D 10 A

9. How is the nucleon number (mass number) of an atom calculated?

- A electrons + neutrons + protons
- B protons + electrons
- C protons + neutrons
- D protons only

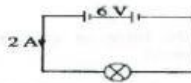
10. Two identical resistors are connected in parallel with a battery and three ammeters  $A_1$ ,  $A_2$ , and  $A_3$ .



Which row shows a possible set of readings for the ammeters?

ammeter	$A_1$	$A_2$	$A_3$
A	3 A	1 A	2 A
B	4 A	2 A	2 A
C	2 A	2 A	2 A
D	2 A	2 A	4 A

11. What is the power of the  $3\ \Omega$  lamp shown in the circuit diagram?



- A. 0.33 W  
B. 3.0 W  
C. 4.0 W  
D. 12.0 W

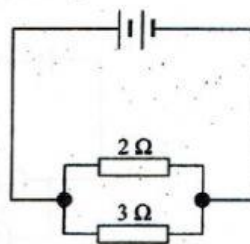
12. A 60 W laptop is charged 90 minutes, every day.



If a kilo-Watt hour of electricity costs 10 ¢, how much does it cost to charge the laptop during a 30-day month?

- A. 27 ¢  
B. 30 ¢  
C. 300 ¢  
D. 450 ¢

13. Two resistors are connected in a circuit as shown.

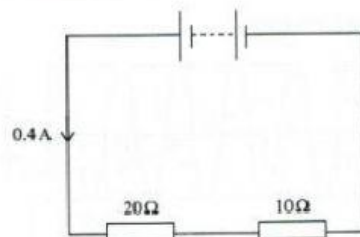


What is the total resistance of the resistors?

- A. less than  $2\ \Omega$   
B. between  $2\ \Omega$  and  $3\ \Omega$   
C. between  $3\ \Omega$  and  $5\ \Omega$   
D. more than  $5\ \Omega$

14.

The diagram below shows a series circuit.

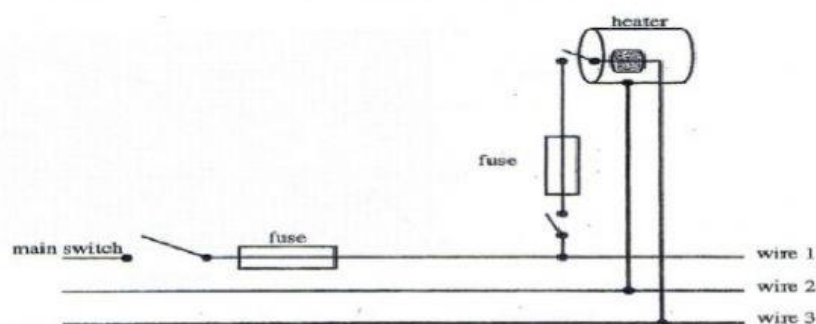


What is the power supplied to the circuit when a current of 0.4 A flows through the 10Ω and 20Ω resistors?

- A. 30 W
- B. 12 W
- C. 10 W
- D. 4.8 W

15.

The diagram shows a heater connected to the three wires of the mains supply of a house.



What are the correct names of the wires 1, 2 and 3?

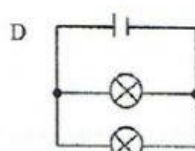
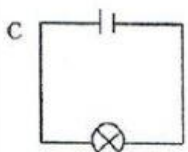
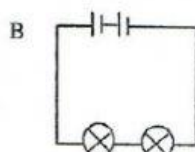
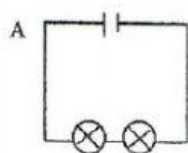
	wire 1	wire 2	wire 3
A	earth	live	neutral
B	live	neutral	earth
C	neutral	earth	live
D	live	earth	neutral

16.

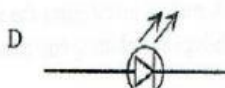
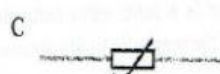
A householder uses a 2 000 W water heater continuously for 90 minutes. What will be the cost of operating the water heater if a unit of electricity is 20 cents.

- A. 30 cents
- B. 40 cents
- C. 60 cents
- D. 80 cents

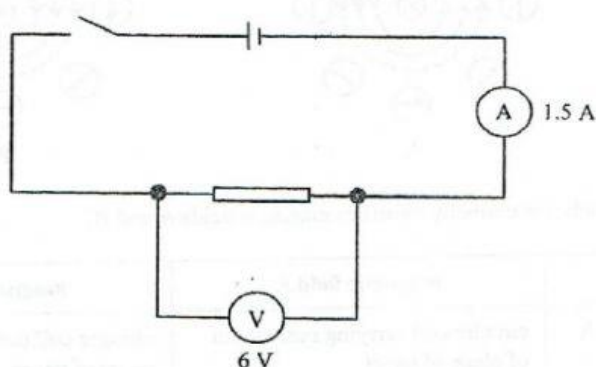
17. The circuits show two identical lamps connected in various ways to either one or two 2 V cells. In which circuit will the voltage across a single lamp be 1 V?



18. The diagrams show some common circuit symbols. Which symbol represents a light emitting diode?



19. When the voltage across a resistor is 6 V, the current through it is 1.5 A.



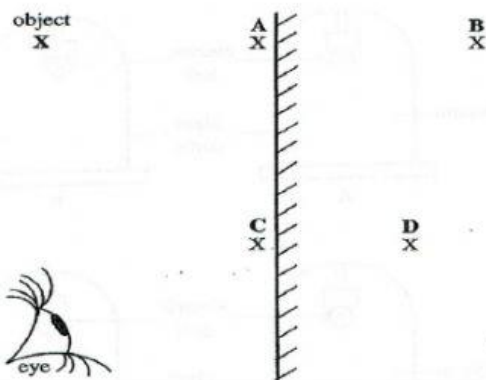
What is the resistance of the resistor used?

- A. 4.0  $\Omega$   
 B. 4.5  $\Omega$   
 C. 7.5  $\Omega$   
 D. 9.0  $\Omega$
20. Which component is best suited for use in a temperature sensor?
- A. light dependent resistor  
 B. light emitting diode  
 C. semi-conducting diode  
 D. thermistor

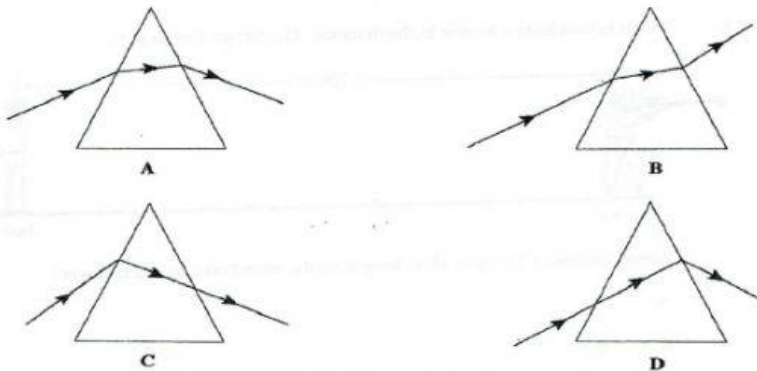


## Topic 2: Light waves

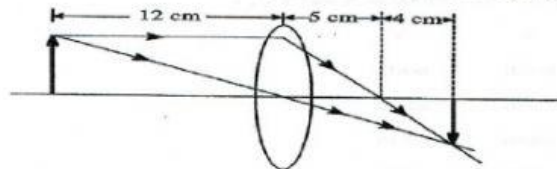
21. The diagram shows the position of the eye of a person looking at the reflection of the letter X (object) in a plane mirror. At which position is the image seen?



22. Which diagram is the best representation of the path followed by a ray of light as it passes through a prism?



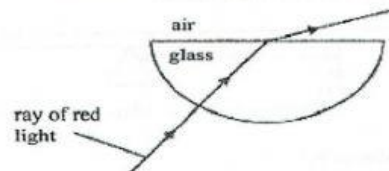
23. The ray diagram shows how an image is formed by a converging lens.



What is the focal length of this lens?

- A 4 cm  
B 5 cm  
C 9 cm  
D 12 cm

24. The diagram shows the path of a ray of red light, as it travels through a glass block.



Why is the ray of light refracted as it travels from glass into air?

- A. its amplitude changes  
B. its frequency change  
C. its speed changes  
D. it is not white light

25. A student investigates the behaviour of a beam of light in four transparent materials A, B, C and D.

Which material has the greatest refractive index?

	angle of incidence ( $^{\circ}$ )	angle of refraction ( $^{\circ}$ )
A	30	25
B	30	16
C	30	10
D	30	7

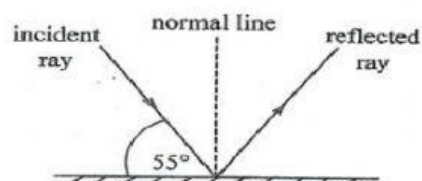
26. The chart shows part of the electromagnetic spectrum.

gamma waves	P	ultraviolet rays	visible light	Q	R	radio waves
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Which row identifies the names of the radiations P, Q and R?

	P	Q	R
A	x-rays	microwaves	infra-red
B	microwaves	x-rays	infra-red
C	infra-red	x-rays	microwaves
D	x-rays	infra-red	microwaves

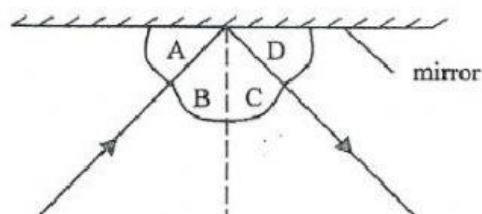
27. The diagram shows a ray of light reflected by a plane mirror.



What is the angle of incidence?

- A.  $35^{\circ}$
- B.  $55^{\circ}$
- C.  $70^{\circ}$
- D.  $135^{\circ}$

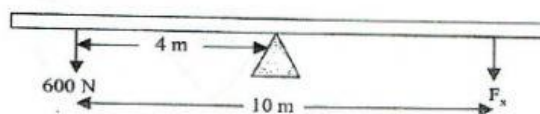
28. The diagram shows a ray of light being reflected by a plane mirror.



Which angle is the angle of incidence?

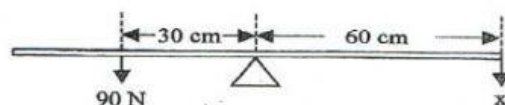
## Topic 3: Forces and Heat Energy

29. A uniform see-saw is balanced at its midpoint, with forces of 600 N and  $F_x$ , placed 4 m and 6 m respectively, from the midpoint.



What is the value of  $F_x$ ?

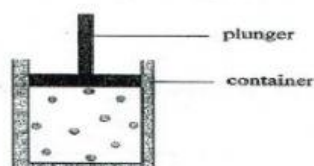
- A. 240 N  
B. 400 N  
C. 2400 N  
D. 3600 N
30. A student investigates the principle of moments by hanging a 90 N weight on a metre rule, 30 cm from the pivot. He balances the rule by hanging another weight  $x$ , 60 cm from the pivot.



What is the weight of  $x$ , when the metre rule is in equilibrium?

- A. 30 N  
B. 45 N  
C. 90 N  
D. 180 N

31. A container has a fixed mass of gas at a constant temperature.  
A plunger is moved down to compress the gas.



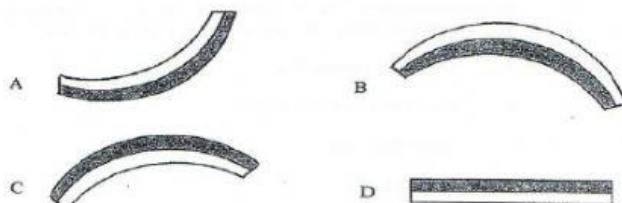
What happens to the mass, volume and density of the gas?

	mass of gas	volume of gas	density of gas
A	decreases	decreases	increases
B	increases	increases	decreases
C	remains the same	increases	increases
D	remains the same	decreases	increases

32. The diagram shows a bimetallic strip made of brass and steel at room temperature.



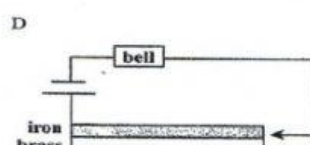
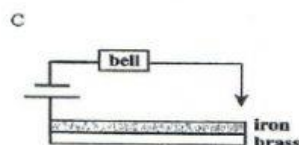
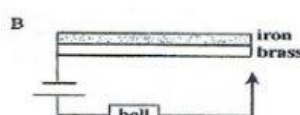
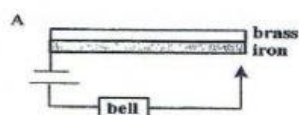
Which diagram shows how the bimetallic would appear after being placed in a freezer for some time?





33.

The diagrams show different attempts to use a bi-metallic strip in a fire alarm. Which current will cause the alarm bell to ring in the event of a fire or a temperature increase?



34.

A trolley is used to carry a box of weight 800 N. The weight of the trolley and the box is 1 550 N. If the gravitational force per unit mass is 10 N/kg, what is the mass of the trolley on its own?

- A. 75 kg  
B. 155 kg  
C. 800 kg  
D. 15 500 kg



35.

An astronaut travels from the Earth to the Moon. His mass on the Earth is 60 kg and his weight is 600 N. The Moon's gravity is one sixth that on Earth.

What will be his mass and weight on the Moon?

	mass	weight
A	10 kg	100 N
B	60 kg	600 N
C	60 kg	100 N
D	600 kg	600 N

36.

Which speed-time graph could represent the motion of a vehicle moving with an increasing value of acceleration?

