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PHYSICS **0625/23**

Paper 2 Multiple Choice (Extended) **May/June 2026**

45 minutes

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

- There are **forty** questions on this paper. Answer **all** questions.
- For each question there are four possible answers **A**, **B**, **C** and **D**. Choose the **one** you consider correct and record your choice in soft pencil on the multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You may use a calculator.
- Take the weight of 1.0 kg to be 9.8 N (acceleration of free fall = 9.8 m / s^2).

INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.

This document has **20** pages. Any blank pages are indicated.

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1 Which piece of apparatus is used to measure the length of a copper rod of length approximately 2 cm?

View solution

A digital timer

B measuring cylinder

C ruler

D balance

2 Which statement is correct?

View solution

A The acceleration of an object is calculated using the area under a distance–time graph.

B The acceleration of an object is calculated using the gradient of a speed–time graph.

C The speed of an object is calculated using the area under a distance–time graph.

D The speed of an object is calculated using the gradient of a speed–time graph.

3 An object always has mass, but does **not** always have weight.

View solution

What must be present and acting on the mass for it to have weight?

A a gravitational field

B a top-pan balance

C displaced water

D friction due to air resistance

4 An 800 g mass is suspended from a light spring with a spring constant of 20 N / m. The mass is pulled down a further 10.0 cm from the equilibrium position without the spring going past the limit of proportionality. The mass is then released.

Which row about the resultant force on the mass and its acceleration immediately after its release is correct?

View solution

	resultant force on the mass	**acceleration**
A	2.0 N upwards	2.5 m / s^2 upwards
B	7.8 N upwards	9.8 m / s^2 upwards
C	9.8 N downwards	9.8 m / s^2 downwards
D	200 N upwards	0.25 m / s^2 upwards

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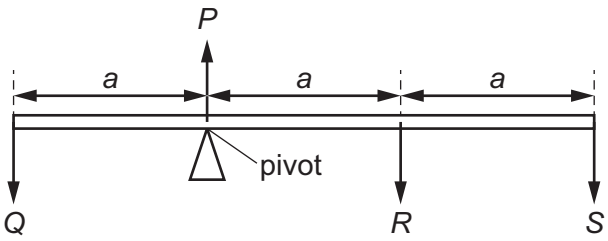
5 Four forces, *P*, *Q*, *R* and *S*, act on a wooden ruler as shown.

View solution



The ruler is pivoted so that it is in equilibrium. Ignore the weight of the ruler.

Which row is correct?

	forces	turning effects
A	$P = Q + R + S$	$(Q \times a) = (R \times a) + (S \times a)$
B	$P = Q + R + S$	$(Q \times a) = (R \times a) + (S \times 2a)$
C	$Q = R + S$	$(Q \times a) = (R \times a) + (S \times a)$
D	$Q = R + S$	$(Q \times a) = (R \times a) + (S \times 2a)$

View solution

6 A car has a mass of 500 kg and is moving at a speed of 10 m / s.

The driver applies the brakes and brings the car to rest in 5.0 s.

What is the average braking force?

A 250 N **B** 1000 N **C** 7500 N **D** 25 000 N

View solution

7 An object of mass *m* moving with velocity *v* has kinetic energy *E*.

What is the kinetic energy of an object of mass 2*m* moving with velocity 0.50*v*?

A 0.50*E* **B** *E* **C** 2.0*E* **D** 4.0*E*

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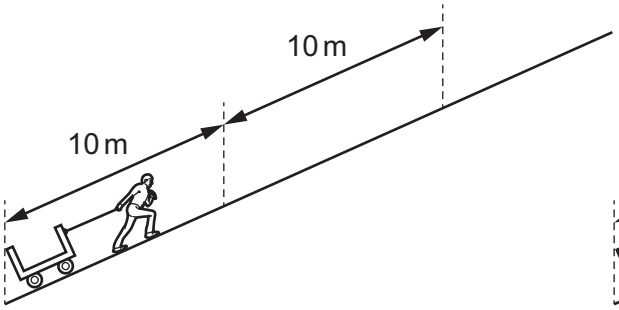
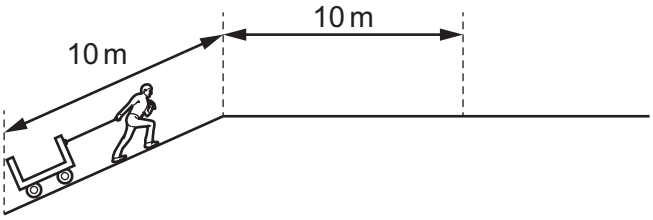
8 A man pulls a truck a distance of 20 m, as shown in the three diagrams.

View solution



1



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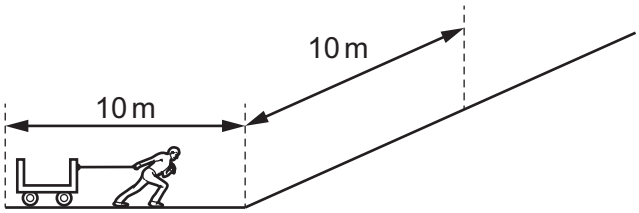

3

Which statement about the work done against gravity is correct?

A The most work is done in diagram 1.

B No work is done in diagram 3.

C The work done in diagram 3 is greater than in diagram 2.

D The work done in diagrams 1 and 2 is equal.

View solution

9 A beaker contains a liquid.

The liquid exerts a pressure on the bottom of the beaker.

On which properties of the liquid does the pressure depend?

A surface area and volume only

B density and depth only

C mass and depth only

D mass and volume only

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10 A gas is trapped inside a cylinder which is sealed by a freely moving piston.

The piston is slowly pushed in so that the volume of the gas is reduced, but the temperature does **not** change.

View solution

What happens to the kinetic energy of the gas particles and the rate at which they collide with the piston?

	kinetic energy of particles	rate at which they collide with the piston
A	no change	no change
B	no change	increases
C	increases	no change
D	increases	increases

View solution

11 When a particle rebounds from a wall, a force is exerted on the wall.

What causes this force?

A the kinetic energy gained by the particle

B the kinetic energy lost by the particle

C the change of momentum of the particle

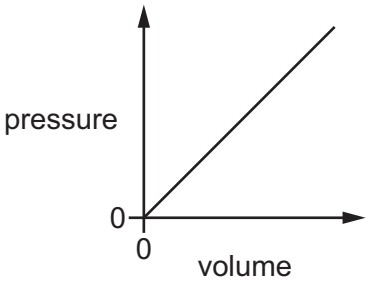
D the change of speed of the particle

View solution

12 The gas in a sealed container is compressed at constant temperature.

Which graph shows how the pressure of the gas changes with its volume?

A



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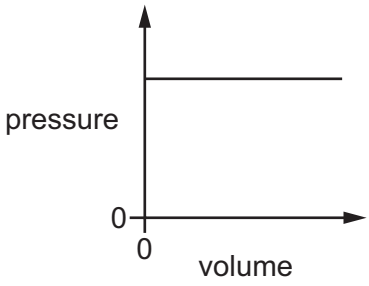

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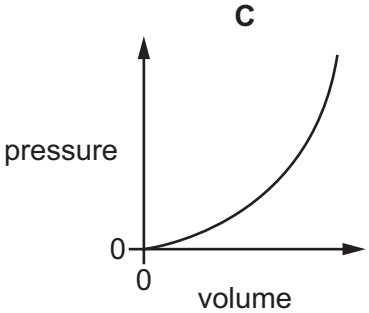

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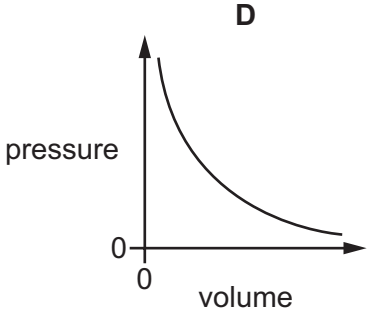

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13 What happens when the temperature of a liquid increases?

View solution

A The mass of the liquid increases, making the liquid less dense.

B The mass of the liquid increases, making the liquid more dense.

C The volume of the liquid increases, making the liquid less dense.

D The volume of the liquid increases, making the liquid more dense.

14 Which statement describes convection in a liquid?

View solution

A The particles expand and become less dense.

B The hot liquid becomes less dense and rises.

C The hot liquid becomes more dense and rises.

D The particles get further apart and fall.

15 A student suggests three processes by which thermal energy is transferred through space from the Sun to the Earth.

View solution

1 conduction

2 convection

3 radiation

Which processes are correct?

A 1, 2 and 3 **B** 1 and 3 only **C** 1 only **D** 3 only

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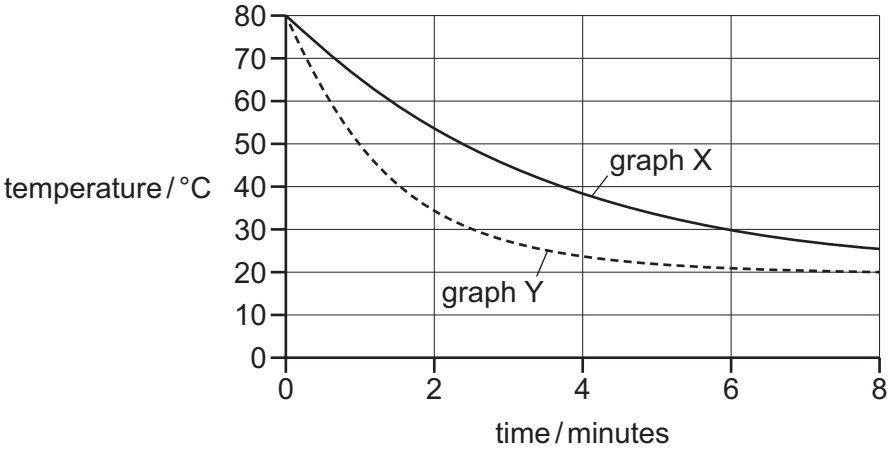
16 A student uses two identical beakers and covers the outside surface of one with dull black paper and the outside surface of the other with shiny foil.

View solution

The student puts the same volume of water at 80 °C into both beakers and measures their temperatures for several minutes.

The cooling curve graphs for each experiment are shown.



Which graph is for the beaker covered in shiny foil and what is the reason for the different rates of cooling?

	graph for beaker with shiny foil	reason
A	X	shiny surfaces are better absorbers of infrared radiation
B	X	shiny surfaces are poorer emitters of infrared radiation
C	Y	shiny surfaces are better absorbers of infrared radiation
D	Y	shiny surfaces are poorer emitters of infrared radiation

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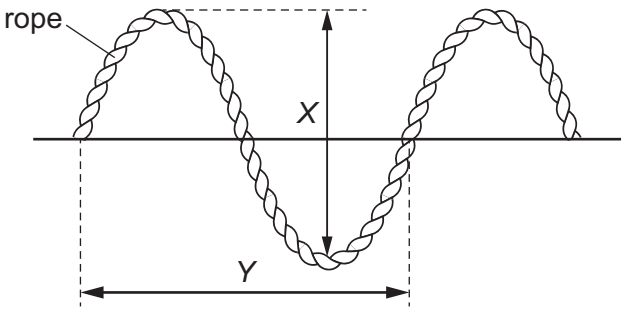
17 The diagram represents a wave on a rope.

View solution



Which type of wave is shown and which labelled arrow shows the wavelength of the wave?

	type of wave	wavelength
A	longitudinal	*X*
B	longitudinal	*Y*
C	transverse	*X*
D	transverse	*Y*

18 Which statements about ultrasound are correct?

View solution

1 They diffract less than audible sound waves.

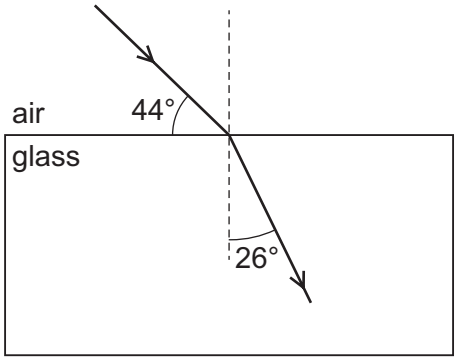
2 They are used in the medical scanning of soft tissues.

3 They travel at a smaller speed in air than audible sound waves.

A 1 and 2 **B** 1 only **C** 2 and 3 **D** 2 only

19 The diagram shows a ray of light entering a glass block.

View solution



What is the refractive index of the glass?

A 1.25 **B** 1.29 **C** 1.58 **D** 1.64

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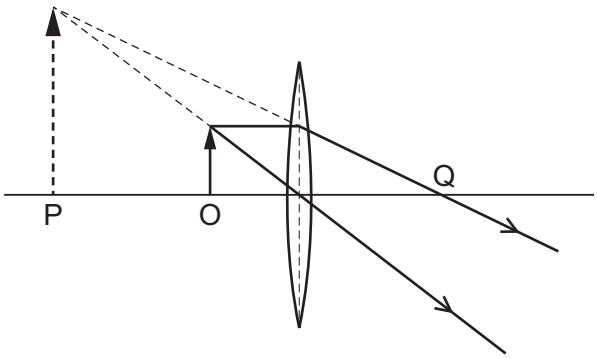
20 An object O is near a converging lens. The diagram shows two rays of light from the object which pass through the lens. The lens forms an image of the object.

View solution



Which row is correct?

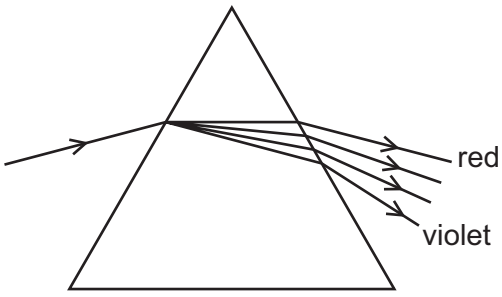
	the type of image formed is	the principal focus of the lens lies
A	real	at P
B	real	at Q
C	virtual	at P
D	virtual	at Q

21 The diagrams show rays of light passing through triangular glass prisms.

View solution

In which diagram is the incident ray monochromatic?

A



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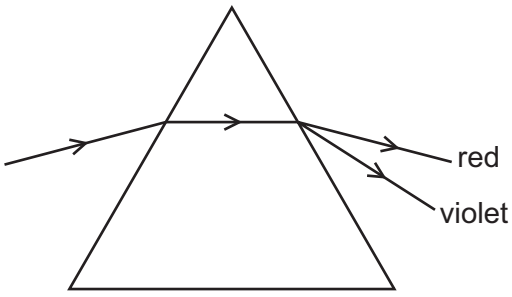

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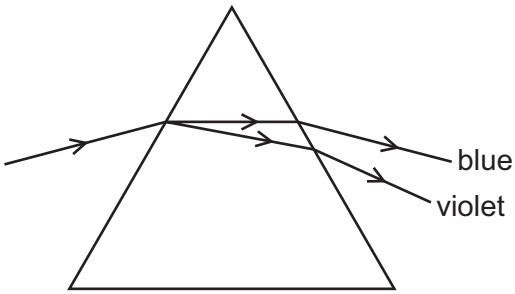

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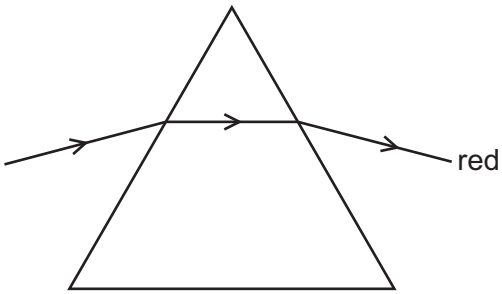

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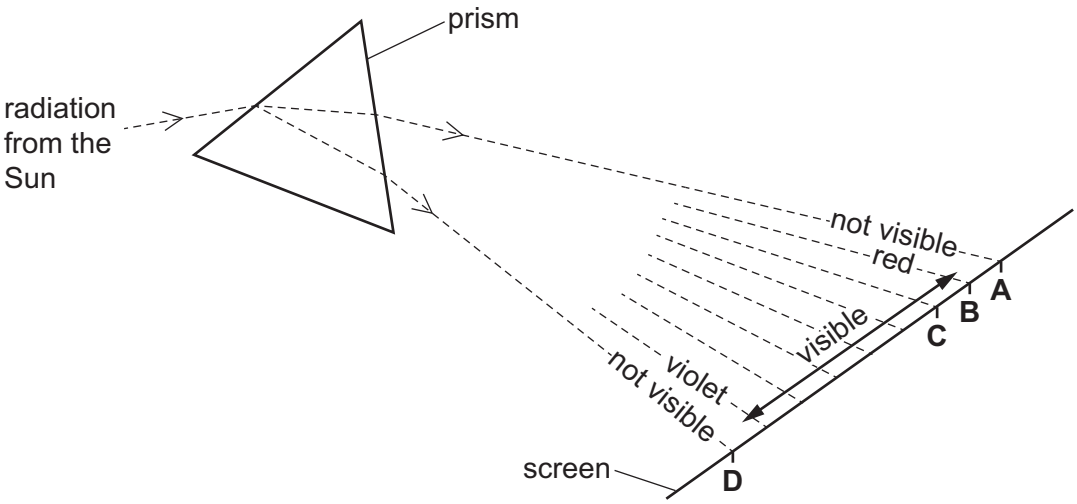
22 Some of the Sun's radiation passes through a prism.

View solution

The diagram shows the spectrum of the radiation.

Which point on the screen does the infrared radiation reach?



23 Which region of the electromagnetic spectrum is used for direct broadcast satellite television?

View solution

A gamma rays

B infrared

C microwaves

D ultraviolet

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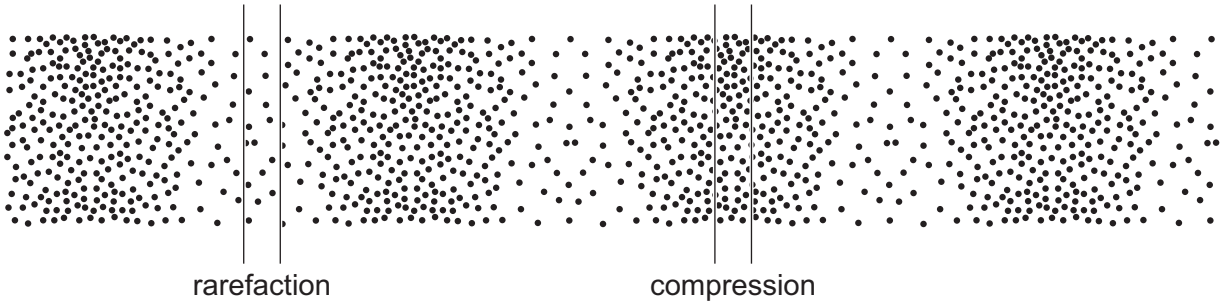
24 The diagram shows compressions and rarefactions in air as a sound wave moves from left to right.

View solution



A quieter sound of the same frequency is made.

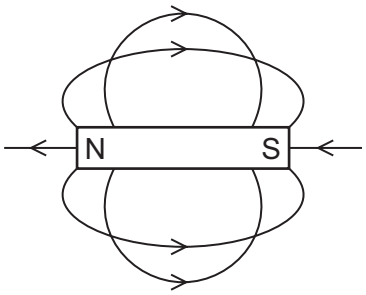
What happens to the number of particles in a region of rarefaction and in a region of compression?

	number of particles in region of rarefaction	number of particles in region of compression
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

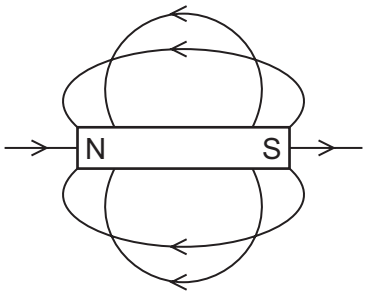
25 Which diagram shows the pattern and direction of the magnetic field lines around a bar magnet?

View solution

A



B



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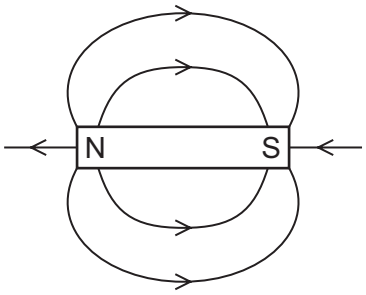

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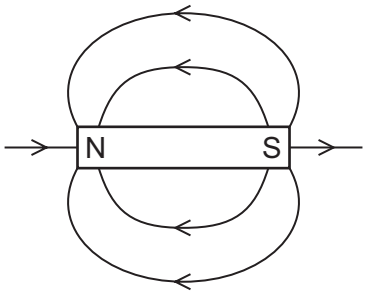

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26 A balloon is charged by rubbing it with a cloth.

View solution

When a negatively charged plastic rod is held close to the charged balloon, the rod and balloon attract.

Which statement is correct?

A The balloon lost electrons to the cloth.

B The balloon gained electrons from the cloth.

C The balloon lost protons to the cloth.

D The balloon gained protons from the cloth.

27 Which quantity is measured in kilowatt-hours?

View solution

A energy transferred

B energy transferred in one hour

C power transferred

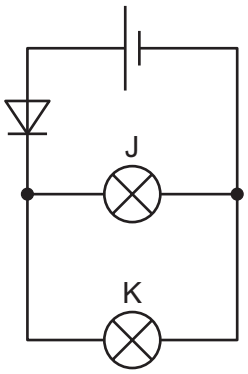
D power transferred in one hour

28 A teacher makes four circuits with two identical lamps, J and K.

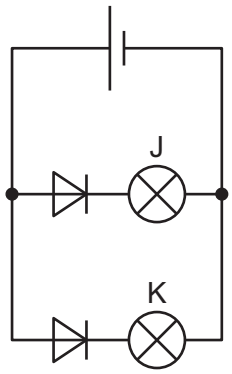
View solution

In which circuit will **only** lamp J light?

A



B



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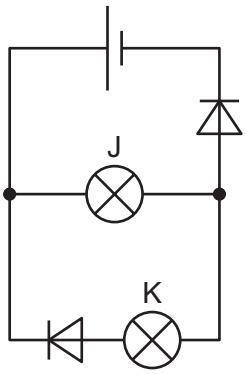

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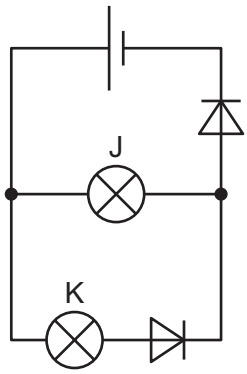
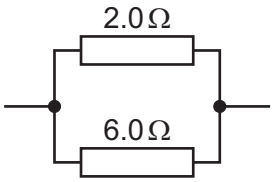


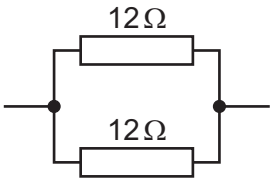
29 Which combination has a resistance of 8.0 Ω?

View solution

A



B



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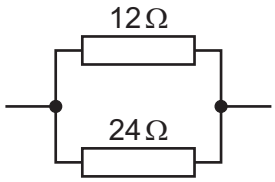

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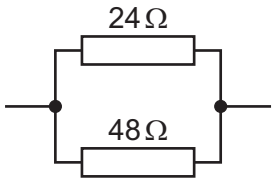

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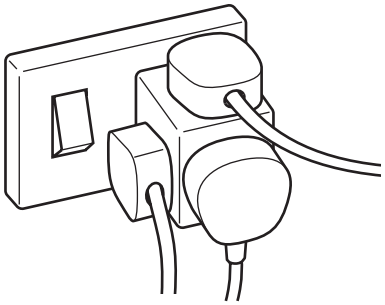
30 Multiple sockets can be connected to the mains electricity supply so that a lot of appliances can use the same socket.

View solution



Why can this be a problem?

A The current in each appliance may **not** be enough for it to work correctly.

B The potential difference (p.d.) across each appliance may **not** be enough for it to work correctly.

C The total current may be large and cause overheating or a fire.

D The total potential difference (p.d.) may be large and cause overheating or a fire.

31 A relay consists of a coil and it is a type of switch. It is turned on and off using an electromagnet.

View solution

Four statements explaining how the relay works are listed.

1 An electromagnetic field forms around the coil.

2 Contacts are pushed together, completing the circuit.

3 There is a current in the coil.

4 This attracts a soft-iron armature.

What is the correct order for the statements that explains how the relay works?

A $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$

B $1 \rightarrow 4 \rightarrow 3 \rightarrow 2$

C $3 \rightarrow 1 \rightarrow 2 \rightarrow 4$

D $3 \rightarrow 1 \rightarrow 4 \rightarrow 2$

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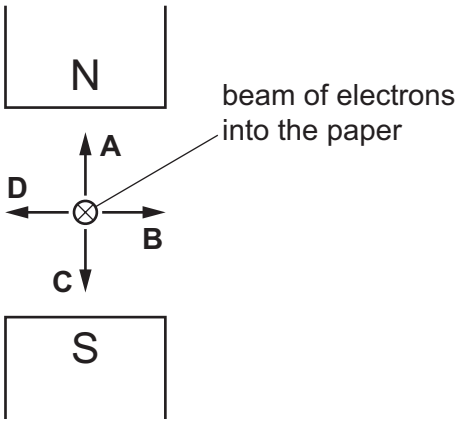
32 A beam of electrons passes between the poles of a magnet into the plane of the paper.

View solution

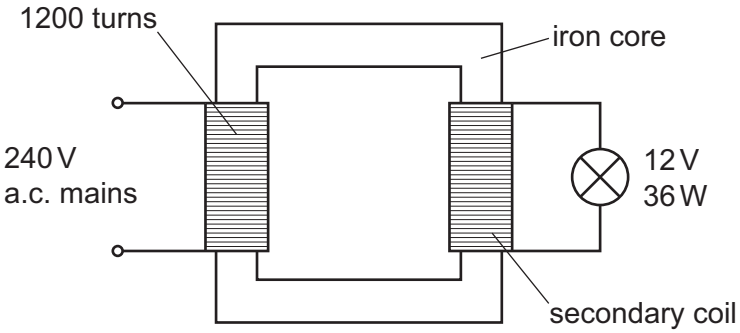
In which direction does the force on the electrons act?



33 A 12 V, 36 W lamp shines at normal brightness when connected to a mains transformer.

View solution

Assume the transformer is 100% efficient.



Which row shows the number of turns in the secondary coil and the current in the mains wires?

	number of turns in secondary coil	**current in the mains wire / A**
A	60	0.15
B	60	3.0
C	180	0.15
D	180	3.0

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34 In a nuclear fusion reaction, a hydrogen-2 nucleus joins with a hydrogen-3 nucleus to produce nucleus X and particle Y.

View solution

$$^{2}_{1}\mathrm{H} + {}^{3}_{1}\mathrm{H} \rightarrow \mathrm{X} + \mathrm{Y}$$

Which row identifies nucleus X and particle Y?

	nucleus X	particle Y
A	$^{5}_{1}\mathrm{He}$	$^{0}_{-1}\beta$
B	$^{5}_{2}\mathrm{He}$	$^{0}_{-1}\beta$
C	$^{4}_{2}\mathrm{He}$	$^{1}_{0}\mathrm{n}$
D	$^{5}_{1}\mathrm{He}$	$^{1}_{0}\mathrm{n}$

35 The equipment used to measure ionising nuclear radiation includes a detector.

View solution

What is the detector connected to?

A an ammeter

B a counter

C a force meter

D a timer

36 α-particles, β-particles and γ-radiation are emitted from radioactive substances.

View solution

Which emissions are deflected in both magnetic and electric fields?

A α-particles, β-particles and γ-radiation

B α-particles and β-particles only

C α-particles and γ-radiation only

D β-particles and γ-radiation only

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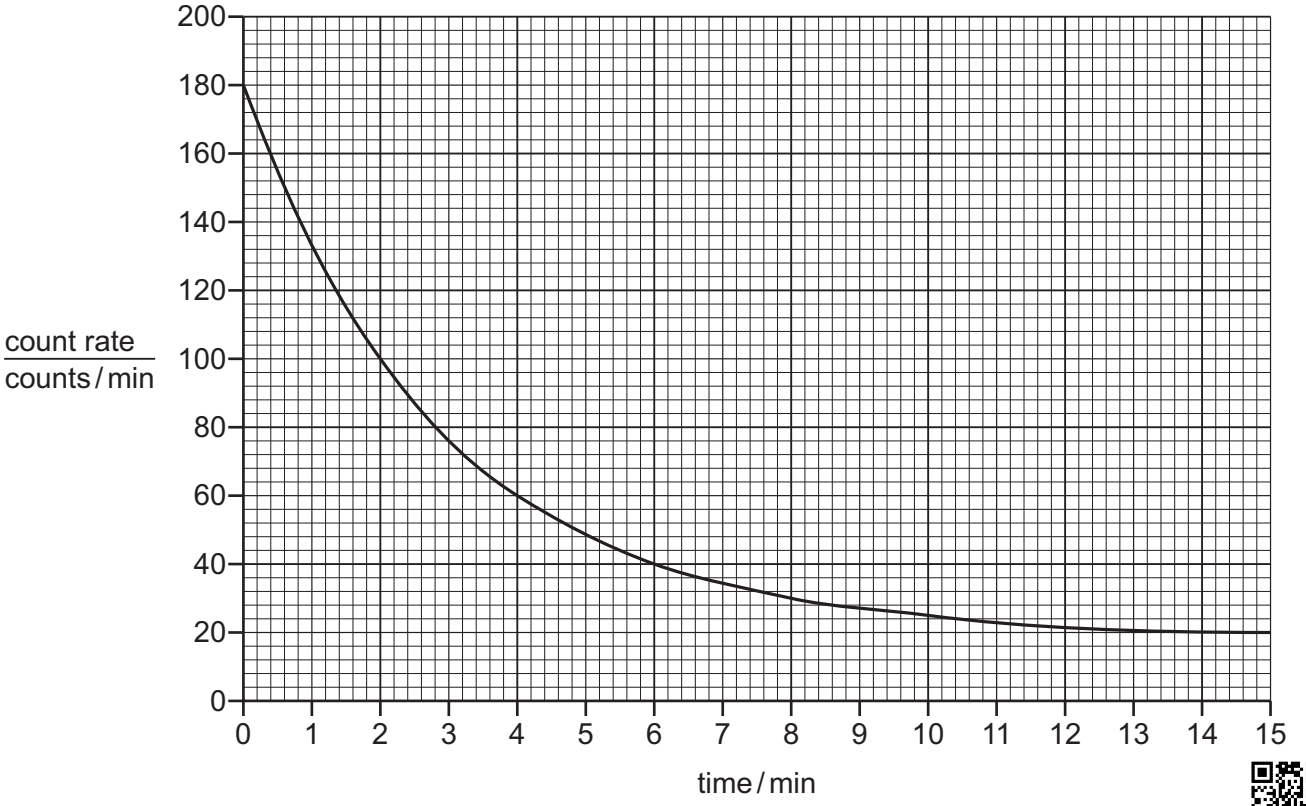
37 Oxygen-15 is used in hospitals.

The count rate from a detector placed close to a sample of oxygen-15 was recorded over a period of 15 min. The background count rate is 20 counts / min. The graph shows the total count rate from the detector.



View solution

What is the half-life of this sample of oxygen-15?

A 2.0 min **B** 2.4 min **C** 2.8 min **D** 7.5 min

View solution

38 Safety precautions are needed when a person is using a radioactive source.

What is **not** a precaution for a person using a radioactive source?

A Keep as far from the source as possible while using it.

B Keep a transparent shield between the person and the source.

C Keep the time for which the source is being used as short as possible.

D Keep the source switched off when the radiation is **not** needed.

View solution

39 A satellite in a geostationary orbit has an average orbital speed of 3.1 km / s.

The radius of the Earth is 6.4×10^3 km.

What is the average height of the satellite above the Earth's surface?

A 36 000 km **B** 43 000 km **C** 49 000 km **D** 72 000 km

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40 A stable star, such as the Sun, is powered by nuclear reactions.

View solution

Which type of nuclear reaction takes place and which element undergoes this reaction in the Sun?

	type of nuclear reaction	element
A	fission	hydrogen
B	fission	uranium
C	fusion	hydrogen
D	fusion	uranium

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