

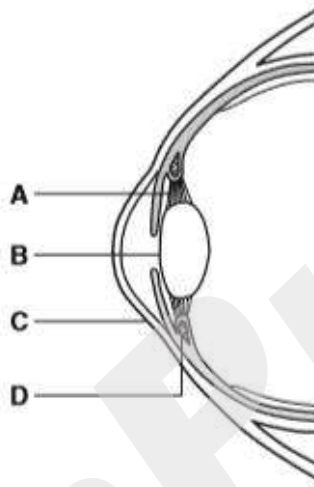
Coordination and response

IGCSE Biology Topical Question – Paper 1

May/June 2003

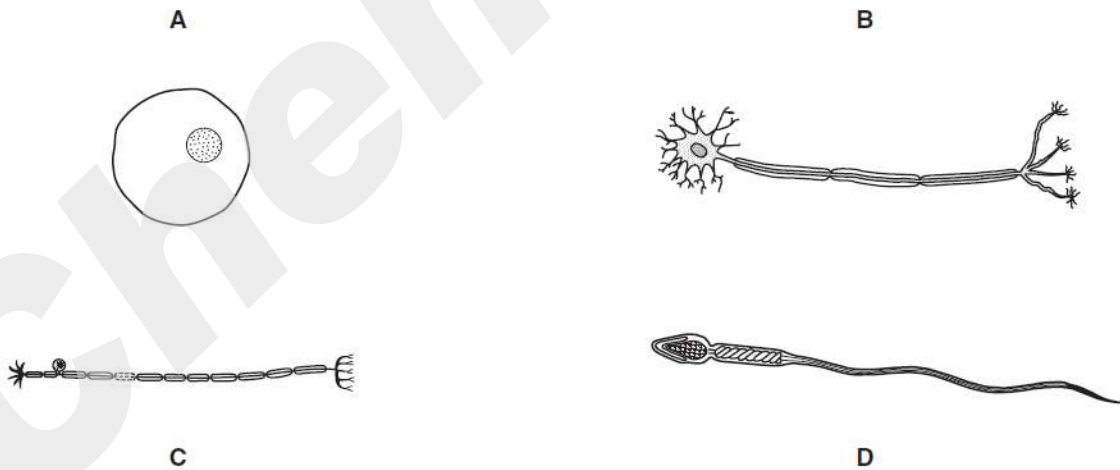
23 The diagram shows a section through part of the human eye.

Which part contains muscles?

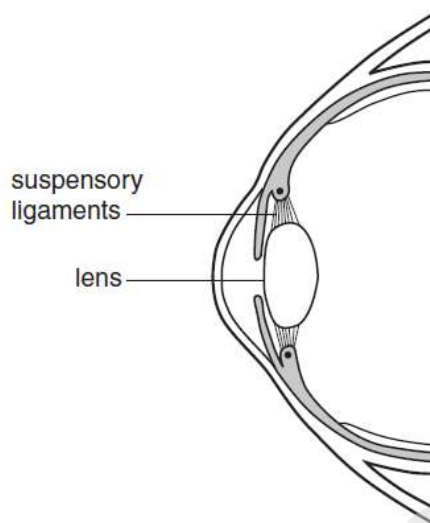


Oct/Nov 2003

22 Which diagram shows a motor neurone?



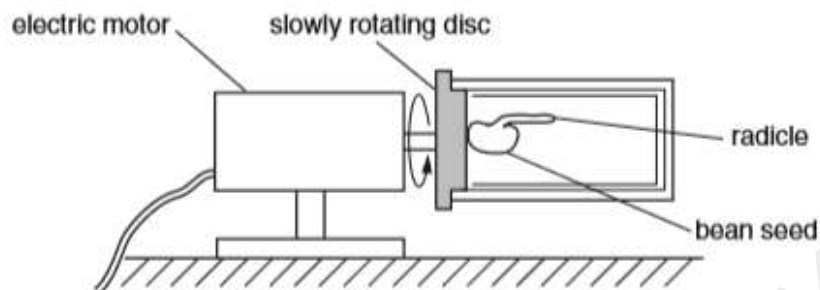
23 The diagram shows a section through part of the human eye.



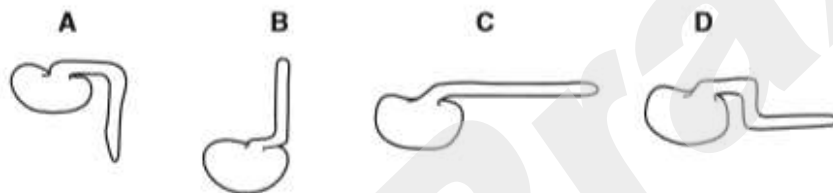
When a person looks at a close object, which of the following takes place?

	suspensory ligaments	lens
A	slacken	becomes fatter
B	slacken	becomes thinner
C	tighten	becomes fatter
D	tighten	becomes thinner

- 24 The diagram shows a germinated bean seed with a horizontal radicle. This is placed on a slowly rotating disc and is left for three days.

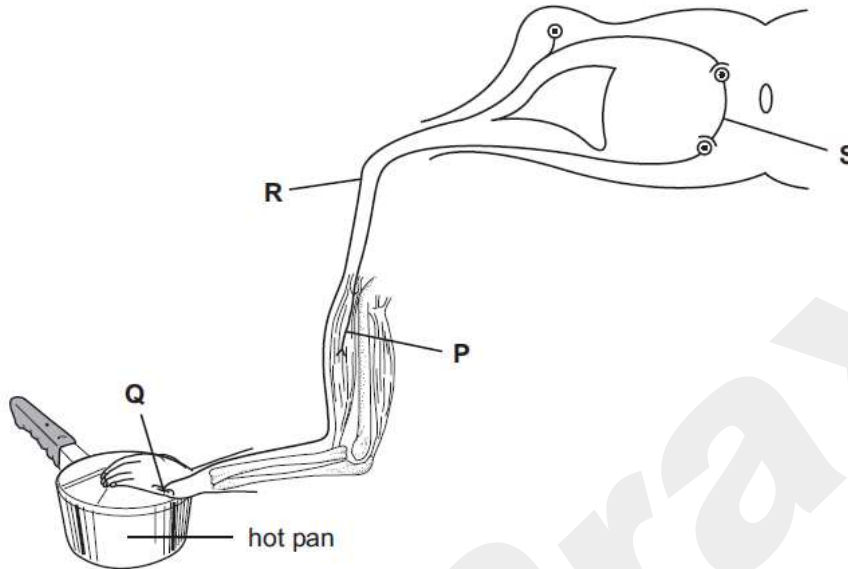


Which diagram shows the appearance of the radicle after three days?



May/June 2004

23 The diagram shows the structures involved in a reflex action.



What shows the sequence in which these structures become involved?

- A P → Q → R → S
 - B P → S → R → Q
 - C Q → R → S → P
 - D Q → S → P → R
- 24 A person moves from sunlight into a dark room.

How do their eyes respond?

- A The blind spots become larger.
- B The blind spots become smaller.
- C The pupils become larger.
- D The pupils become smaller.

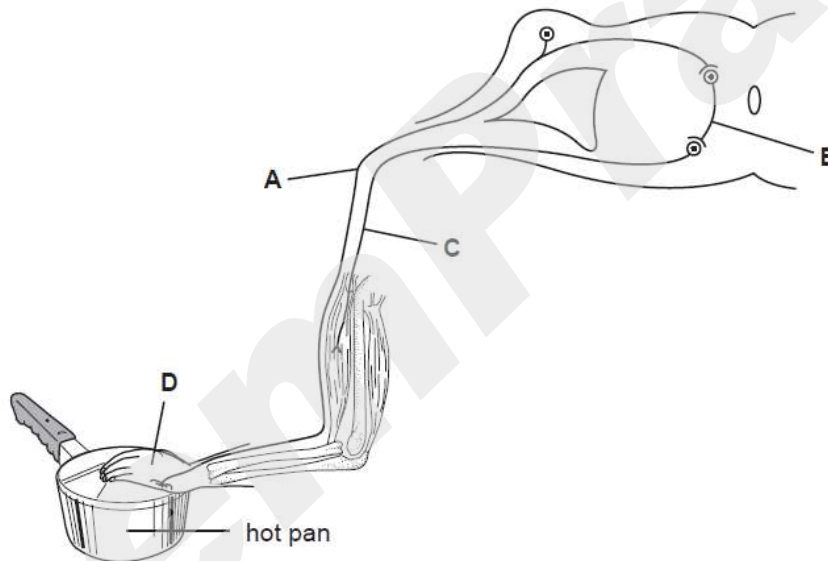
Oct/Nov 2004

- 21** How do sweat glands and blood vessels near the skin surface respond when body temperature rises above normal?

	sweat glands	blood vessels near the skin surface
A	decreased activity	constriction
B	decreased activity	dilation
C	increased activity	constriction
D	increased activity	dilation

- 23** The diagram shows a reflex arc.

Which label points to the sensory neurone?



- 25** What is the correct sequence of structures involved in a reflex action?

- A** effector → sensory neurone → relay neurone → motor neurone → receptor
- B** effector → motor neurone → relay neurone → sensory neurone → receptor
- C** receptor → sensory neurone → relay neurone → motor neurone → effector
- D** receptor → relay neurone → sensory neurone → motor neurone → effector

May/June 2005

25 During a long-distance race, the body temperature of an athlete begins to rise.

Which changes occur to help return the body temperature to normal?

	sweating	blood vessels in the skin
A	decreases	constrict
B	decreases	dilate
C	increases	constrict
D	increases	dilate

26 The diagrams show part of the arm being raised.

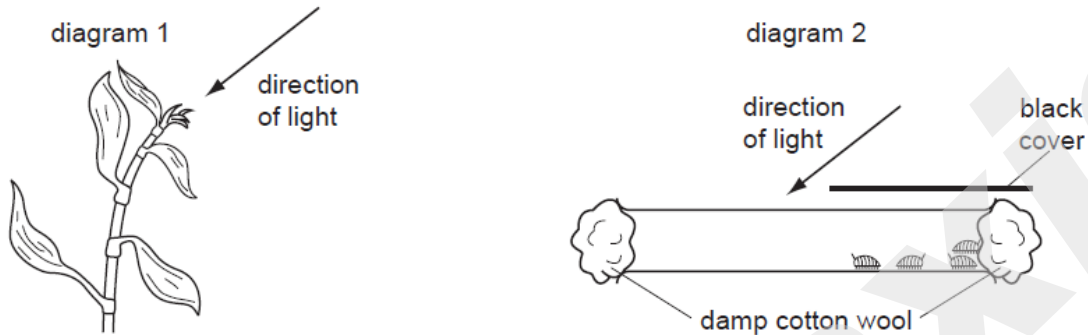


Which is the order of events that causes the movement shown in the diagrams?

- A** impulse in motor neurone → biceps contracts → muscle pulls bone
- B** impulse in motor neurone → triceps relaxes → muscle pushes bone
- C** impulse in sensory neurone → triceps contracts → muscle pushes bone
- D** impulse in sensory neurone → biceps relaxes → muscle pulls bone

27 Movement towards a stimulus is described as positive. Movement away from a stimulus is described as negative.

Diagram 1 shows a plant shoot. Diagram 2 shows small invertebrates in a glass tube.



Which responses are being shown by these organisms?

	plant shoot	invertebrates
A	negative phototaxis	positive phototropism
B	negative phototropism	positive phototaxis
C	positive phototaxis	negative phototropism
D	positive phototropism	negative phototaxis

Oct/Nov 2005

23 What happens when the body temperature rises above normal?

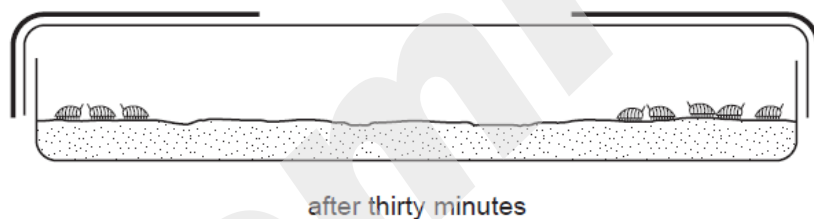
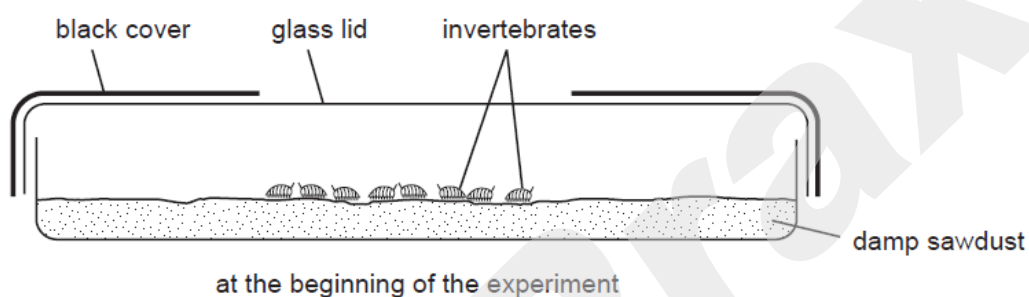
	blood vessels in the surface of skin	sweat production
A	dilate	decreases
B	constrict	increases
C	constrict	decreases
D	dilate	increases

25 What shows the order in which these structures are involved in a reflex action?

start \longrightarrow finish

- A effector \rightarrow motor neurone \rightarrow relay neurone \rightarrow sensory neurone \rightarrow receptor
- B effector \rightarrow sensory neurone \rightarrow motor neurone \rightarrow relay neurone \rightarrow receptor
- C receptor \rightarrow sensory neurone \rightarrow relay neurone \rightarrow motor neurone \rightarrow effector
- D receptor \rightarrow motor neurone \rightarrow sensory neurone \rightarrow relay neurone \rightarrow effector

26 The diagrams show invertebrates in a glass container in the light.

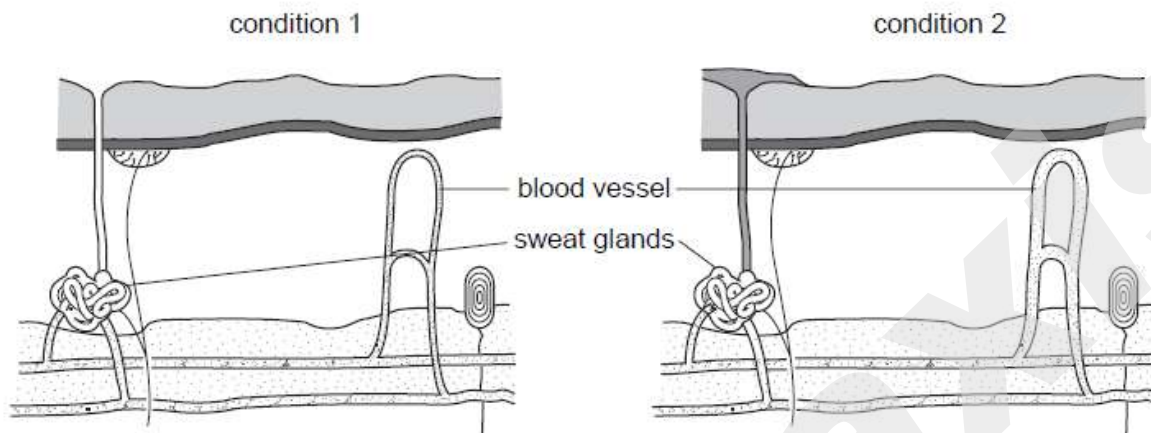


Which response is shown by the animals?

- A negative phototaxis
- B negative phototropism
- C positive phototaxis
- D positive phototropism

May/June 2006

23 The diagram shows structures within human skin under two different external conditions.



What are external conditions 1 and 2?

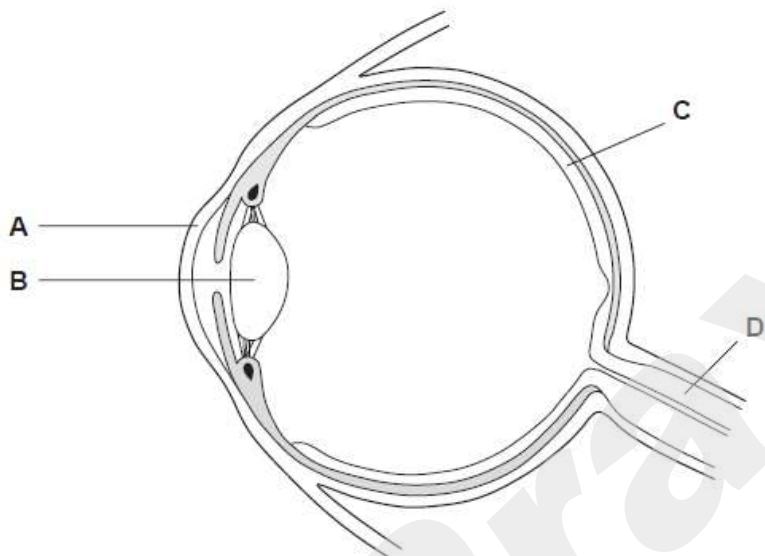
	condition 1	condition 2
A	cool	hot
B	cool	cool
C	hot	cool
D	hot	hot

24 Which of these contains relay neurones?

- A** effector
- B** receptor
- C** spinal cord
- D** stimulus

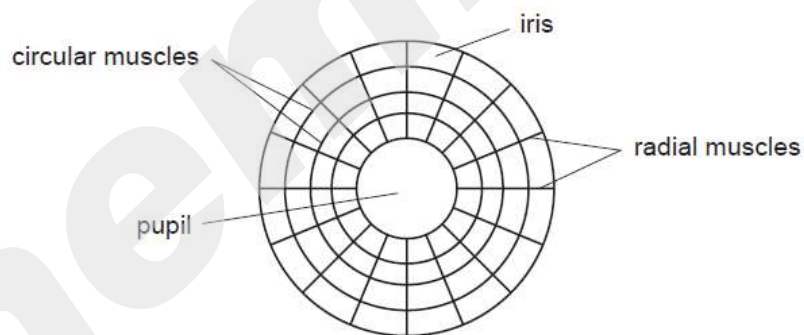
25 The diagram shows a section through an eye.

Which structure contains cells that are sensitive to light?



Oct/Nov 2006

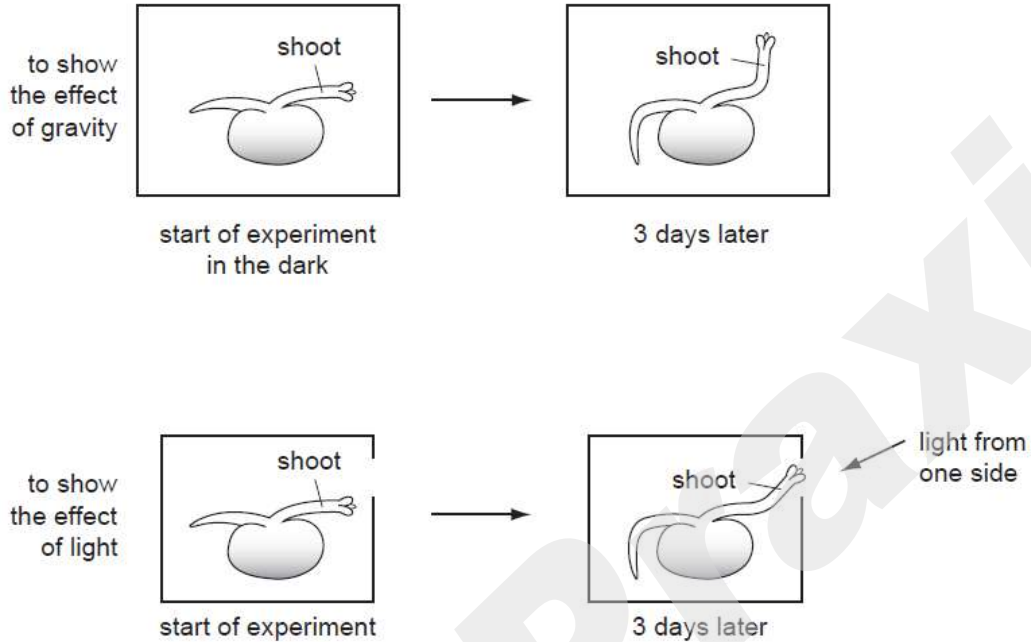
23 The diagram shows the muscles which control the size of the pupil in an eye.



How do the muscles make the pupil larger?

	circular muscles	radial muscles
A	contract	contract
B	contract	relax
C	relax	contract
D	relax	relax

25 The diagram shows seedlings in an experiment on the tropic response of shoots to gravity and light.



How has the shoot responded?

	to gravity	to light
A	✓	✓
B	✓	x
C	x	✓
D	x	x

key

✓ = tropic response shown

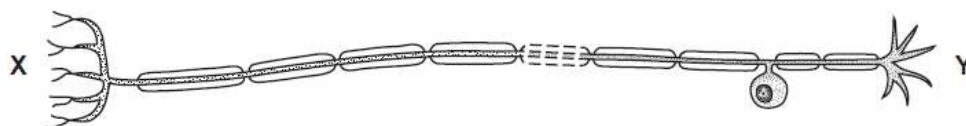
x = no tropic response shown

May/June 2007

22 What is an example of homeostasis?

- A breathing in oxygen
- B regulating blood glucose
- C removing undigested food through the anus
- D urinating to empty the bladder

24 The diagram shows a neurone.

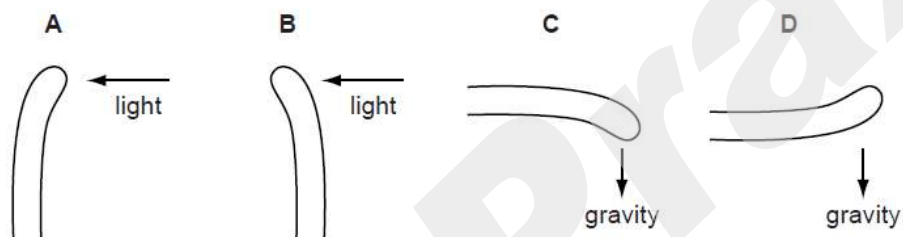


Which structures could be found at X and Y?

	X	Y
A	brain	intestine
B	brain	leg
C	eye	hand
D	skin	spinal cord

25 The diagram shows shoots of maize seedlings.

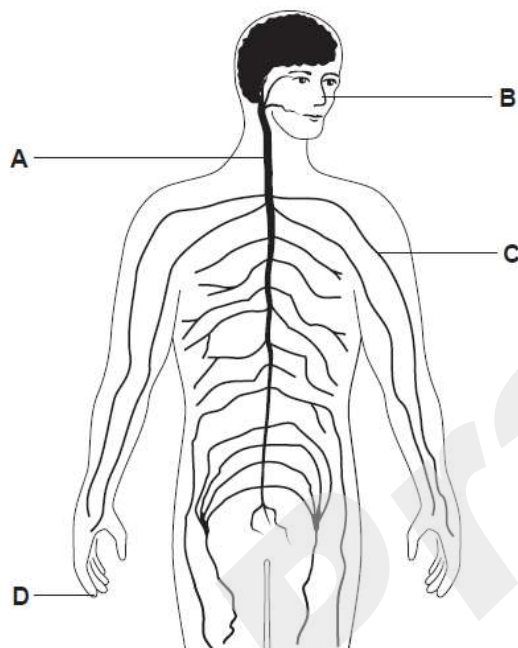
Which shoot shows negative geotropism?



Oct/Nov 2007

24 The diagram shows the human nervous system.

Which letter indicates a part of the central nervous system?



25 The diagram shows a person sweating in hot weather.

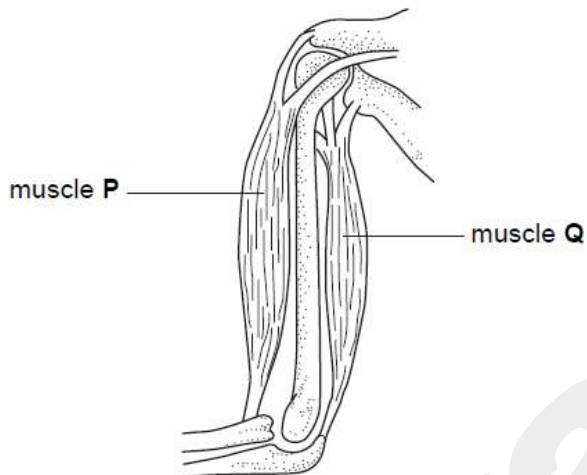


What part is played by sweat glands during the process of sweating?

- A effector
- B receptor
- C sense-organ
- D stimulus

May/June 2008

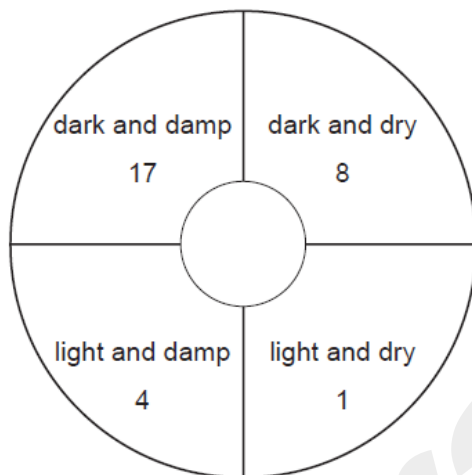
24 The diagram shows muscles and bones in a human arm.



When muscle **Q** contracts, what happens to muscle **P** and to the arm?

	muscle P	the arm
A	contracts	bends
B	contracts	straightens
C	relaxes	bends
D	relaxes	straightens

- 25** Thirty woodlice were placed in the centre of a dish with four compartments, each with different conditions. The diagram shows the number of woodlice that had moved into the different compartments after twenty minutes.

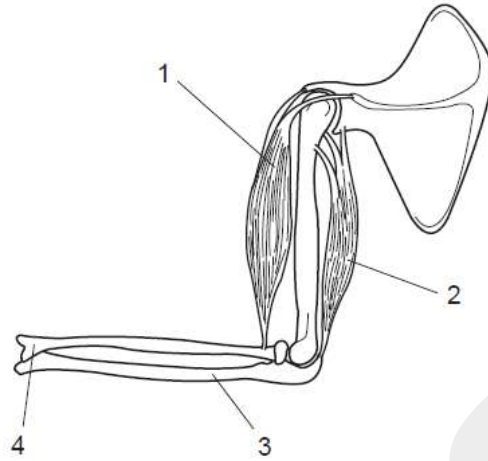


What do these results show?

- A** Woodlice prefer light and damp conditions.
- B** Woodlice prefer light and dry conditions.
- C** Woodlice prefer to be in the dark.
- D** Woodlice prefer to be in the light.

Oct/Nov 2008

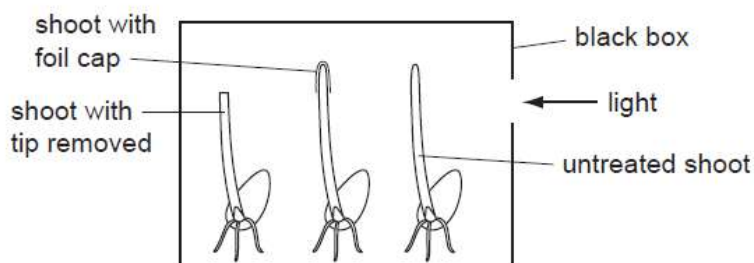
24 The diagram shows bones and muscles in the human arm.



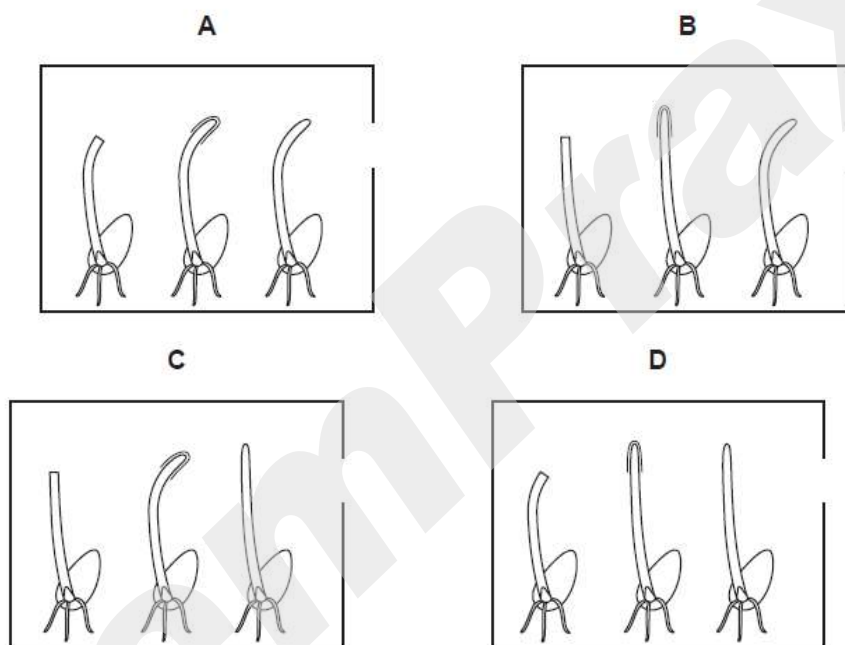
Which row correctly identifies the biceps, triceps and ulna?

	biceps	triceps	ulna
A	1	2	4
B	1	2	3
C	2	1	4
D	2	1	3

- 25 The diagram shows the apparatus used to investigate the effect of light on the growth of three plant shoots.



Which diagram shows the likely result after one day?



May/June 2009

23 What is true for a runner, at the end of a marathon race, in a hot climate?

- A sweating and vasoconstriction
- B sweating and vasodilation
- C vasoconstriction only
- D vasodilation only

24 When a person is frightened, adrenalin is released by the adrenal glands.

What are the effects of the adrenalin?

	breathing rate	heart beat rate
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

v

23 After a meal, the concentration of blood glucose increases.

What then causes the concentration of blood glucose to return to normal?

- A adrenalin
- B blood cells
- C insulin
- D platelets

24 A bright light suddenly shines into a person's eyes.

What happens?

- A The lenses become more concave.
- B The lenses become more convex.
- C The pupils become larger.
- D The pupils become smaller.