18 The senses - answers

1 A *stimulus* (A) such as touch, is detected by a *receptor* (B) and we may make a *response* (C).

2 The skin can detect heat, cold, touch and pressure.

3 Nerve impulses travelling from a receptor to the brain make us aware of a stimulus.

4 We can distinguish sweet, sour, salt and bitter tastes.

5 A - ciliary muscle, B - iris, C - aqueous humour, D - lens, E - cornea, F - sclera,
G - vitreous humour, H - choroid, I - retina, J - fovea, K - blind spot, L - optic nerve.

6 (b) 'The radial fibres in the iris contract' is incorrect

7 (c) There are no sensory cells in the blind spot.

8 (a) The fovea is the region of the retina which gives the most accurate interpretation of the image.
(b) The light-sensitive cells in the fovea are the cones.

9 The curved surface of the cornea, and the aqueous humour enclosed by it, refract the light. The lens also refracts the light.

10 (a) Accommodation is the way the eye can focus either near or distant objects to form a sharp image on the retina.
(b) The lens is made thinner so that light from a distant object is refracted less, or fatter so that light from a close object is refracted more.

11 (b) 'The ciliary muscle relaxes and the lens gets thinner' is the correct statement.

12 Red-green colour blindness is the most common form of colour blindness in men.

13 Long eyeballs, large eyeballs, too powerful a lens, or a combination of these defects can give rise to short-sightedness.

14 Converging (convex or meniscus) lenses can help correct long-sightedness.

18 The senses

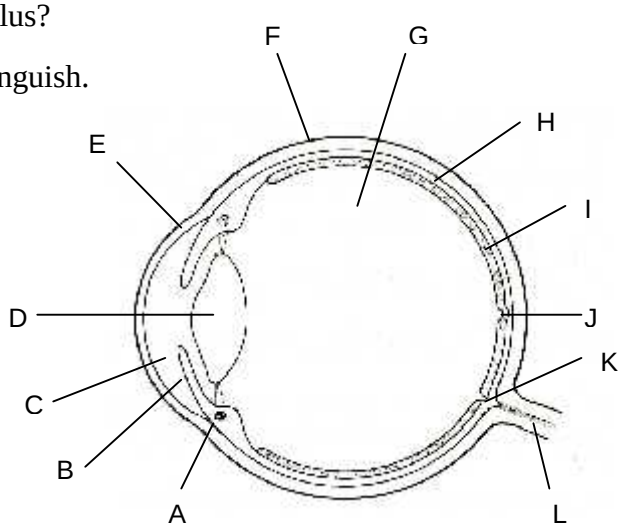
1 Complete the sentence below using the three most appropriate words from the list.
A …..(A) ….. such as touch, is detected by a ….. (B) ….. and we may make a ….. (C) ….. . .
response, change, organ, stimulus, movement, receptor, effector

2 List four stimuli which can be detected by the skin.

3 By what means do we become aware of a stimulus?

4 Name the four taste sensations that we can distinguish.

5 Give the names of the parts of the eye labelled in the diagram.



6 Which one of the following statements is incorrect?
When a bright light shines in the eye
(a) impulses travel in the optic nerve
(b) the radial fibres in the iris contract.
(c) the retina responds
(d) the pupil becomes smaller.

7 What is the cause of the blind spot in the field of vision?
(a) There are no nerves in the blind spot.
(b) There are only cones in the blind spot.
(c) There are no sensory cells in the blind spot.
(d) The image is not formed on the blind spot.

8 (a) Which region of the retina gives the most accurate interpretation of the image?
(b) What type of light-sensitive cell is present in this region?

9 Which parts of the eye refract ('bend') the light in such a way as to form an image on the retina?

10 (a) What do you understand by the term 'accommodation'?
(b) What part does the lens play in this process?

11 Which is the correct statement?
To focus a distant object
(a) the ciliary muscle contracts and the lens gets thicker
(b) the ciliary muscle relaxes and the lens gets thinner
(c) the ciliary muscle contracts and the lens gets thinner
(d) the ciliary muscle relaxes and the lens gets thicker.

12 What type of colour blindness is most common in men?

13 What kind of eye defect can give rise to short-sightedness?

14 What type of spectacle lens can help correct long-sightedness?