HKUGAC

Sensing the Environment

Science Assignment 1

S2___ Name: _____ ( ) / / Grade:

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Multiple choice questions

1. Which of the following combinations about sense organs and their stimuli is INCORRECT?

	Sense organ	Stimulus
A.	tongue	chemicals in air
B.	skin	temperature
C.	ear	sounds
D.	eye	light

2. Which of the following parts of the eye get(s) smaller in bright light?

   A. Cornea

   B. Optic nerve

   C. Pupil

   D. Eye muscles

3. Which of the following parts of the eye control(s) the size of the pupil?

   A. Eyelid

   B. Eyelashes

   C. Iris

   D. White protective coat

4. Which of the following will happen when looking at a distant object?

A. The lens becomes thinner.

B. The lens becomes thicker.

C. The eyeball becomes longer.

D. The eyeball becomes shorter.

5. Which of the following is/are the characteristics of the image formed on the retina?

(I) The image is upright.

(II) The image is inverted.

(III) The image has the same size as the object.

(IV) The size of the image is much smaller than that of the object.

A. (I) and (III) only

B. (I) and (IV) only

C. (II) and (III) only

D. (II) and (IV) only

6. Which of the following is the function of the optic nerve?

A. To carry signals to the brain

B. To give shape to the eye

C. To control the amount of light entering the eye

D. To focus light onto the retina

7. Which of the following statements about the blind spot is/are CORRECT?

(I) There are only cones on the blind spot.

(II) Light focused on the blind spot produces no sense of sight.

(III) The blind spot is where the optic nerve leaves the eyeball.

A. (I) only

B. (II) only

C. (II) and (III) only

D. (I), (II) and (III)

8. Which of the following can cause short sight?

A. The lens becomes cloudy.

B. The eyeball is too short.

C. There is no cornea.

D. The lens is thicker than normal.

9. Which of the following statements about long sight is CORRECT?

A. Long sight can be corrected by wearing suitable concave lenses.

B. A long-sighted person can see distant objects but not near objects clearly.

C. The image of a distant object is formed in front of the retina.

D. Long sight occurs if the eyeball is too long.

10. Which of the following statements about colour-blind people is CORRECT?

A. They cannot see near objects clearly.

B. They cannot see distant objects clearly.

C. Their vision is cloudy.

D. They cannot distinguish between certain colours.

11. Which of the following statements about sound level is INCORRECT?

A. Sound level is measured in decibels.

B. Sound level depends on the frequency of the sound.

C. A sound at high sound level is loud.

D. Sound level can be measured with a decibel meter.

12. Which of the following statements can explain why sound cannot travel in a vacuum?

(I) We cannot survive in a vacuum.

(II) Sound is transmitted through the vibration of particles.

(III) There are no particles in a vacuum.

A. (I) only

B. (II) only

C. (II) and (III) only

D. (I), (II) and (III)

13. Which of the following parts of the ear magnify/magnifies the vibrations of the eardrum?

A. Ear flap

B. Ear canal

C. Ear bones

D. Cochlea

14. Which of the following may result from long-term exposure to noise?

(I) Sleep loss

(II) Poor performance

(III) High blood pressure

A. (I) only

B. (II) only

C. (II) and (III) only

D. (I), (II) and (III)

15. Which of the following is NOT a method of protecting our sense of hearing?

A. Stay away from noisy places.

B. Wear earmuffs in noisy places.

C. Keep screaming in noisy places.

D. Keep the volume of music low.

20. Which of the following stimuli are detected by the nose?

A. Chemicals in air

B. Chemicals in food

C. Chemicals in water

D. Chemicals produced in the nose

22. Which of the following is/are NOT a sense organ?

(I) Skin

(II) Brain

(III) Tongue

A. (I) only

B. (II) only

C. (II) and (III) only

D. (I), (II) and (III)

23. Which of the following are stimuli detected by the skin?

(I) Touch

(II) Temperature

(III) Pain

A. (I) and (II) only

B. (I) and (III) only

C. (II) and (III) only

D. (I), (II) and (III)

25. Which of the following is NOT the function of a brain?

A. It controls the movement of the muscles.

B. It interprets signals from the sense organs.

C. It coordinates sensory and motor functions.

D. It detects stimuli.

27. What is the basic unit of the brain?

A. Nerve cells

B. Nerve muscles

C. Nerves

D. Receptors

28. Alcohol reacts with acidified potassium dichromate solution in the breathalyser and the solution turns _____.

A. red

B. purple

C. green

D. blue

29. What is/are the effect(s) of solvent-sniffing for a long time?

(I) Brain damage

(II) Suffocation

(III) Death

A. (I) and (II) only

B. (II) and (III) only

C. (I) and (III) only

D. (I), (II) and (III)

Fill in the blanks

Fill in the blanks with the words given in the box below (Questions 1 to 2).

sight	brain	smell	touch
taste	sense organ	stimuli	hearing

1. A sense organ contains receptors which detect particular kinds of _stimuli. When stimulated, they send signals to the _brain_.

2. The five senses are sight, taste, smell, touch and hearing.

Fill in the blanks with the words given in the box below (Questions 3 to 5).

retina	optic nerve	smaller
light-sensitive cells	iris	lens

3. The size of the pupil is controlled by iris. In bright light, the pupil becomes smaller.

4. The blind spot is the place where the optic nerve leaves the eye. It does not contain any light-sensitive cells.

5. The cornea and lens focus light entering the eye onto the retina.

Fill in the blanks with the words given in the box below (Questions 6 to 8).

rods	eyeball	inverted
optic nerve	thinner	cones

6. (extension) The image of an object on the retina is inverted.

7. (extension) When looking at a distant object, the lens becomes thniner while the length of the eyeball remains unchanged.

8. (extension) Rods and cones are the two types of light-sensitive cells. They produce signals which are sent to the brain along the optic nerve.

Fill in the blanks with the words given in the box below (Questions 9 to 10).

small	sight	microscope	signals
far away	light-sensitive cells		telescope

9. We cannot see objects which are too small or too far away. We need instruments to extend our vision. For example, we use a microscope to observe micro-organisms and a telescope to observe the stars.

10. When light from an object is focused on the blind spot, no light sensitive cells will be stimulated and no signals will be sent to the brain. Hence, no sense of sight will be produced.

Fill in the blanks with the words given in the box below (Questions 11 to 13).

red-green	convex	thicker	short
hereditary	concave	long	thinner

11. (extension) Short sight occurs if the lens is thicker than normal or the eyeball is too long, while long sight occurs if the lens is thinner than normal or the eyeball is too short.

12. Short sight can be corrected by wearing suitable convex lenses, while long sight can be corrected by wearing suitable concave lenses.

13. Colour-blindness is a hereditary disease. Red-green colour-blindness is the most common one.

Fill in the blanks with the words given in the box below (Questions 14 to 15).

hertz	sound level	dB
frequency	Hz	decibels

14. A sound with a high pitch has a high frequency. A loud sound has a high sound level.

15. The frequency of a sound is measured in hertz (symbol: Hz). The sound level of a sound is measured in decibels (symbol: dB).

Fill in the blanks with the words given in the box below (Questions 16 to 18).

auditory nerve	liquid	ear flap
ear canal	vacuum	cochlea

16. Sound can travel through a gas, a liquid and a solid, but it cannot travel in a vacuum.

17. Sound waves are collected by the ear flap and travel along the ear canal to the middle ear.

18. The vibrations of sounds cause the sensitive cells in the cochlea to produce signals, which are sent to the brain along the auditory nerve.

Fill in the blanks with the words given in the box below (Questions 19 to 20).

150 000	20 000	20
audible frequency range	150	

19. The range of frequencies of sounds within which we can hear is called the audible frequency range.

20. (extension) Humans can hear sounds of frequencies from 150 Hz to 20000 Hz while dolphins can hear sounds of frequencies from 150 Hz to 150000 Hz.

Fill in the blanks with the words given in the box below (Questions 21 to 22).

sleep loss	stress	high
hearing loss	decibel meter	

21. Sound level can be measured by an instrument called a decibel meter. High sound level is harmful to our health. Long-term exposure to it may cause hearing loss.

22. Noise can affect our mental health. For example, it may cause stress and sleep loss.

Fill in the blanks with the words given in the box below (Questions 23 to 25).

sweet	salty	nose	saliva
smell receptors	dissolve	taste buds	

23. The chemicals in the air dissolve in the moist layer inside the nose. These chemicals stimulate the smell receptors to produce signals, which are sent to the brain to produce the sense of smell.

24. The chemicals in food dissolve in the saliva. These chemicals stimulate the taste receptors in the taste buds to produce signals, which are sent to the brain to produce the sense of taste.

25. The four primary tastes are sweet, sour, salty and bitter.

Fill in the blanks with the words given in the box below (Questions 26 to 27).

pain	skin	temperature
reliable	touch	sensitive

26. The biggest sense organ in our body is the skin. It has different types of receptors for pain, touch and temperature.

27. (extension) The skin is sensitive to temperature but is not totally reliable in detecting it.

Fill in the blanks with the words given in the box below (Questions 28 to 29).

medulla	responses	senses	muscles
sense organs	cerebrum		cerebellum

28. The brain interprets signals from the sense organs and produces senses. It also controls

the movement of muscles and produces response.

29. The brain consists of three major parts. cerebrum is the centre of memory and intelligence. cerebellum controls balance. Medulla controls heartbeat and breathing.

Fill in the blanks with the words given in the box below (Questions 30 to 31).

potassium dichromate	alcohol	green
breathalyser	solvents	drugs

30. (extension) A breathalyser can be used to measure the alcohol content in the breathed air of a driver. It contains acidified potassium dichromate solution, which reacts with alcohol to give a green colour.

31. Alcohol, drugs and some other solvents affect brain functions and hence affect our judgement and responses.