

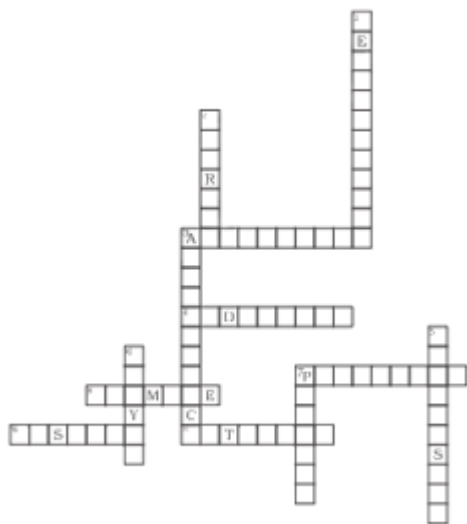
Time Allowed: 3 hours

General Instructions:

- ## Section A

- Page 1 of 8

- a) proper diet develops their brains. b) proper diet is needed for the rapid growth taking place in their body.
- c) taste buds are well developed in teenagers. d) adolescents feel hungry all the time.
8. Which of these is an example of a contact force? [1]
- a) A magnet attracting a hanging iron nail. b) A guava falling from the tree.
- c) A plastic comb attracting small pieces of hair. d) A boat moving on water by the action of wind on its sail.
9. Rolling friction and sliding friction are two types of [1]
- a) Static friction b) Directional friction
- c) Dynamic or kinetic friction d) Fluid friction
10. A human heart beats 72 times in a minute. Its frequency will be [1]
- a) 1.2 Hz b) 8.2 Hz
- c) 1.9 Hz d) 2.5 Hz
11. Which of these is a correct pair of an insulator and a conductor? [1]
- a) Insulator - Aluminium b) Insulator - Thermocol
- Conductor - Cotton Conductor - Rubber
- c) Insulator - Copper d) Insulator - Wax
- Conductor - Iron Conductor - Aluminium
12. Which among the following is not a natural phenomenon? [1]
- a) Earthquake b) Cooking
- c) Cyclone d) Lightening
13. In a thick plane mirror, which image is the brightest? [1]
- a) Third image b) Second image
- c) First image d) Last image
14. State true or false: [1]
- Largest tiger reserve in India is Ranthambore National Park.
15. State true or false: [1]
- Magnitude of the fluid friction does not depend on the nature of the fluid.
- Section B**
16. Suggest a suitable word for each of the following statements. [2]
- a. Chemicals added to food to prevent the growth of microorganisms.
- b. Nitrogen-fixing microorganisms present in the root nodules of legumes.
- c. The agent which spreads pathogens from one place to another.
- d. Chemicals which kill or stop the growth of pathogens.
17. Describe the process of formation of coal in the nature. [2]
18. Why is natural gas considered the best fuel for transportation? [2]
19. Word game: Use the clues to work out the words. [2]

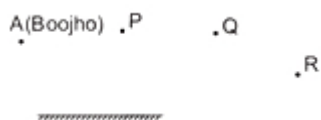


Across

3. Protruding voice box in boys
4. Glands without ducts
7. Endocrine gland attached to brain
8. Secretion of endocrine glands
9. Pancreatic hormone
10. Female hormone

Down

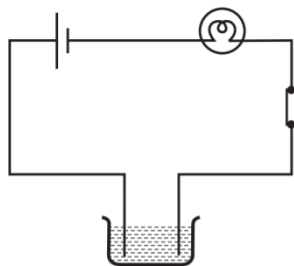
1. Male hormone
2. Secretes thyroxine
3. Another term for teenage
5. Hormone reaches here through blood stream
6. Voice box
7. Term for changes at adolescence
20. Your parents are going to buy a house. They have been offered one on the roadside and another three lanes away from the roadside. Which house would you suggest your parents should buy? Explain your answer. [2]
21. You are provided with a magnetic compass, an empty matchbox, a battery of two cells, and connecting wires. Using these objects how will you make a tester for testing an electric circuit? Draw the necessary circuit diagram and explain it. [2]
22. Boojho stands at A just on the side of a plane mirror as shown in figure. Can he see himself in the mirror? Also can he see the image of objects situated at P, Q and R? [2]



Section C

23. Write a notes on tools used for sowing seeds. [4]
24. Write the names of various components of petroleum and write their uses. [4]
25. Explain the terms viviparous and oviparous with examples. [4]
26. What are sex hormones? Why are they named so? State their function. [4]
27. What experiment was performed to prove that air has pressure? [4]
28. What is ultrasound and where it is used? [4]
29. Boojho made the circuit given in figure and observed that the bulb did not glow. On Paheli's suggestion he [4]

added one more cell in the circuit. The bulb now glows. Explain.



30. How can you save yourself from lightning? [4]

31. What is the first and second law of reflection? [4]

Section D

32. Explain binary fission in amoeba? [5]

33. a. What is meant by atmospheric pressure? What is the cause of atmospheric pressure? [5]

b. Why are our bodies not crushed by the large pressure exerted by the atmosphere?

34. **Answer the following question:** [5]

i. What is the value of the em.f. of simple cell?

ii. Which acid is used in a car battery?

iii. Which gases are liberated when a car battery is being recharged?

iv. What name is given to substances, such as dilute sulphuric acid, which can be decomposed by an electric current?

Solution

Section A

1.
(c) Neem
Explanation: Dried neem leaves are used for storing food grains at home.
2.
(b) alcohol and Carbon dioxide
Explanation: Yeast catalyses conversion of sugar molecules into alcohols and carbon dioxide in absence of oxygen. The process of formation of alcohol by yeast is called as fermentation.
3.
(c) None of these
Explanation: None of these
4.
(d) Can be done with less excess air.
Explanation: Can be done with less excess air.
5.
(c) Red Data Book
Explanation: Red Data Book
6.
(a) Spermiogenesis
Explanation: Conversion of spermatids present inside the testis into spermatozoa is called spermiogenesis.
7.
(b) proper diet is needed for the rapid growth taking place in their body.
Explanation: Adolescents should be careful about what they eat, because proper diet is needed for the rapid growth taking place in their body.
8.
(d) A boat moving on water by the action of wind on its sail.
Explanation: A boat moving on water by the action of wind on its sail.
9.
(c) Dynamic or kinetic friction
Explanation: The friction develops when one body moves over the other body is called kinetic friction. Rolling friction and sliding friction are two types of kinetic friction.
10.
(a) 1.2 Hz
Explanation: 1.2 Hz
11.
(d) Insulator - Wax
Conductor - Aluminium

Explanation: Insulator - Wax
Conductor - Aluminium
12.
(b) Cooking
Explanation: Earthquake, cyclone and lightning are natural phenomenon as it occurs naturally but cooking is a man-made process.
13.
(b) Second image
Explanation: In case of image formation by a thick mirror, second image is of highest intensity.

14.

(b) False

Explanation: False

15.

(b) False

Explanation: False

Section B

16. a. Preservatives
b. Rhizobium
c. Carrier/Vector
d. Antibiotics

17. About 300 million years ago, the earth had dense forests in low-lying wetland areas. Due to natural processes like flood, earthquakes and volcanic eruptions, these forests got buried under the soil. As more soil deposited over them, they were compressed. The temperature also rose as they sank deeper and deeper. Under high temperature and pressure buried plants got slowly converted to coal. The coal contains mainly carbon. The slow process of conversion of dead vegetation into coal is called carbonisation. It was formed from the remains of vegetation. Coal is called fossil fuel.

18. It is considered the best fuel for transportation because it can be directly supplied from the gas well to the factories or homes through underground pipelines.

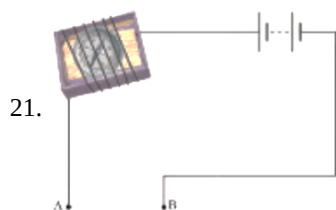
19. **Across**

3. ADAM'S APPLE
4. ENDOCRINE
7. PITUITARY
8. HORMONE
9. INSULIN
10. ESTROGEN

Down

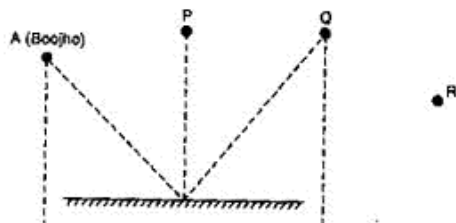
1. TESTOSTERONE
2. THYROID
3. ADOLESCENCE
5. TARGET SITE
6. LARYNX
7. PUBERTY

20. It is better to buy the house which is three lanes away from the roadside as there will be less noise as compared to the one on the main road. The noises can be caused by vehicles. As the distance between the source and the listener increases, the intensity of noise decreases. So it will be advisable to buy the house which is three lanes away.



Due to the magnetic effect of the current; a magnetic compass needle shows deflection when the current passes through it.

22. No, he can see image of object at P but not of Q and R.



Section C

23. **Sowing of seeds:** One of the important part of crop production is sowing. Good quality seeds are selected and are sown in prepared soil with the help of various tools like traditional tools and seed drill.

Broadcasting: This is a traditional method of scattering seeds in the fields by hand. But in this way seeds may not get sown at proper depths and distance.

Traditional tools: The shape of this tool is like a funnel which is filled by seeds, then the seeds are passed down through two or three pipes having sharp ends and these ends pierce into the soil and place seeds there.

Seed drill: Now a day traditional tool has been replaced by seed drill. This tool is used for sowing with the help of tractors and it sows the seeds uniformly and at proper distances and depth, it also ensures covering of the seeds from soil after sowing, so that seeds could not get damaged by birds and by other organisms. Sowing by using a seed drill saves time and labour. In order to avoid overcrowding of plants it is very important to leave some space between two seeds. This also allows plants to get sufficient sunlight, nutrients and water from the soil.

24. The petroleum is the mixture of various fractions. These fractions are separated by the process of refining:

We get following fractions by the process of refining:

(1) LPG (Liquefied Petroleum Gas):

Uses: It is used as domestic and industrial fuel.

(2) Petrol:

Uses: It is used as motor fuel, aviation fuel and solvent for dry cleaning.

(3) Kerosene:

Uses: It is used as fuel for stoves, lamps and for jet aircraft.

(4) Diesel:

Uses: It is used as fuel for heavy motor vehicles and electric generators.

(5) Lubricating Oil:

Uses: It is used as a lubricant.

(6) Paraffin Wax:

Uses: It is used in making ointments, candles and vaseline etc.

(7) Bitumen:

Uses: It is used in making paints and road surfacing.

25. **Viviparous:** The animals which give birth to young ones are called viviparous animals. For example: cat, dog, cow and human beings.

Oviparous: The animals which lay eggs are called oviparous animals. In such animals development of embryo take place outside the female body. For example: All birds and reptiles.

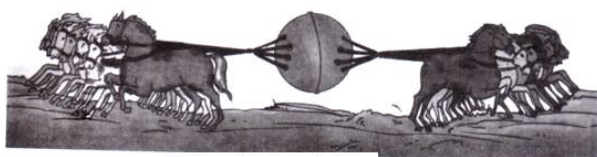
26. The hormones are secrete from testes and ovaries are called sex hormones.

The male hormone or testosterone begins to be released by the testes, and the female hormone or estrogen to be released by the ovarie.

Function of Male Sex Hormones.

The male hormone begin changes in boys like facial hair, that is monstaches and bread. Boys also develop hair on their chest and under the arms the female hormone or estrogen which makes the breasts develop. Milk secreting glands or mammary glands develop inside the breasts. Girls also develop hair under the arms.

27. Otto von Guericke, a German Scientist invented a pump in 17th century to extract air out of a vessel. He demonstrated the force of the air pressure. He joined two hollow metallic hemispheres of 51 cm diameter each and pumped air out of them. Then he employed eight horses on each hemisphere to pull them apart. So great is the force of air pressure that the hemispheres could not be pulled apart.



Horses pulling the hemispheres.

28. Sounds having frequency more than 20000 Hz are called ultrasounds. Ultrasounds cannot be heard by human beings.
- Ultrasounds are used in medicines for diagnosing pregnancy, scan internal organs, in the treatment of kidney stones etc.
 - It also detect cracks in metals.
 - It is used to study the growth of foetus inside the mother's womb.
 - It is used in the treatment of muscular pains and a disease called arthritis.
29. Initially, the bulb was not glowing because the voltage required to make the bulb glow was not sufficient. With the addition of another cell, the voltage increases, i.e. the current through the bulb increases more than a particular value and the bulb starts glowing because it gets sufficient energy to heat its filament.
30. Some safety measures are:

- i. We should run to take shelter in the house.
- ii. We should remain in the covered area.
- iii. We should not sit in open, on scooters or bike etc.
- iv. We should take shelter under a small tree while in open.
- v. If there is no tree or other shelter we should sit with head folded.
- vi. We should plug out all the electrical appliances during lightning.
- vii. We should not use wired telephones during lightning. Mobiles and cordless phones are safe.



Safe position during lightning.

31. First law: The angle of incidence is always equal to angle of reflection.

Second law: The incident ray, the normal to the surface at the point of incidence and the reflected ray, all lie in the same plane.

Section D

32. The type of asexual reproduction in which an animal reproduces by dividing into two individuals is called as the binary fission.

It is usually found in single celled organisms such as “AMOEBA”.

It begins the process of reproduction by the division of its body into two nuclei.

This is followed by division of its body into two each part receiving a nucleus.

Finally two daughter amoeba are produced from one parent amoeba.

33. a. The layer of air above the earth is called atmosphere. The air has weight, so it exerts a pressure on the surface of the earth, which is called atmospheric pressure.

Atmospheric pressure is due to the weight of air present in the atmosphere above us. It acts in all directions.

b. Our body has blood which flows in every cell through blood vessels. Our blood itself exerts a pressure that is greater than the atmospheric pressure. Since atmospheric pressure from outside our body is balanced by the blood pressure acting from inside, we don't get crushed.

34. i. 1.1 V

ii. Dilute sulphuric acid is used in a car battery.

iii. Hydrogen and oxygen gas are liberated when a car battery is being recharged.

iv. Electrolyte