

1

Crop Production and Management

MULTIPLE CHOICE QUESTIONS

- Which one of the following condition is not essential to grow maize?
 - High temperature
 - Humidity
 - Low temperature
 - Rainfall
- Propagation of ginger is generally done using
 - seed
 - stem (rhizome)
 - root
 - leaf
- Which of the following statement is not true for organic manure?
 - It enhances water holding capacity of soil.
 - It has a balance of all plant nutrients.
 - It provides humus to soil.
 - It improves texture of soil.
- The term used for the process of separation of grains from chaff is
 - sieving
 - threshing
 - winnowing
 - hand picking
- Read the statements given below.
 - Seeds require moisture for germination.
 - Plants can absorb nutrients mostly in dissolved form.
 - Irrigation protects crops from both frost and hot air currents.
 - Irrigation improves soil texture.Choose the combination of statements which indicate the need to irrigate crops.
 - i and ii
 - i, ii, iii
 - i, ii, iii, iv
 - i and iii
- Which of the following tools would a farmer use to remove weeds from the field?
 - Hoe
 - Plough
 - Axe
 - Cultivator

7. Which of the following is not true for fertilisers?
- (a) They increase the yield.
 - (b) Their excessive use disturbs the balance of nutrients in soil.
 - (c) They are generally used in small quantity.
 - (d) They are environment friendly.
8. Given below are statements about the harmful effects of weeds on crop plants.
- (i) They interfere in harvesting.
 - (ii) They help crop plants to grow healthily.
 - (iii) They compete with crop plants for water, nutrients, space and light.
 - (iv) They affect plant growth.
- Choose the correct combination of statements.
- (a) i, iii, iv
 - (b) iii only
 - (c) iii, iv
 - (d) i, ii, iii, iv
9. The process of loosening and turning of soil is called
- (a) irrigation and manuring
 - (b) digging and winnowing
 - (c) tilling and ploughing
 - (d) harvesting and storage
10. The monsoon season in our country is during the months
- (a) April to December
 - (b) June to September
 - (c) November to March
 - (d) January to May
11. The system of irrigation where in water is supplied drop by drop near the roots of plants, is called
- (a) pulley system
 - (b) drip system
 - (c) sprinkler system
 - (d) lever system

VERY SHORT ANSWER QUESTIONS

12. Pick out the odd one from the following words given in the box and give reason for it.

Plough, Seed Drill, Hoe, Chain Pump, Sickle

13. If you are given a dry piece of land for cultivation what will you do before sowing the seeds?

14. State whether the following statements are **True** or **False**. Correct the false statements.
- (i) Using good quality seed is the only criterion to get high yield.
 - (ii) Growing different crops in different seasons in the same field will deplete the soil of nutrients.
 - (iii) All crop plants are sown as seeds in the field.
 - (iv) Cells of root nodules of leguminous plants fix nitrogen.
 - (v) Freshly harvested grains must be dried before storing.
15. During which months do farmers grow mustard in India?
16. Which activity of the farmer can promote growth of earthworms and microbes in the field?

SHORT ANSWER QUESTIONS

17. Beera, wants to practice crop rotation in his field. Suggest a *Rabi* crop and a *Kharif* crop which will replenish his field with nitrogen. Which crop replenishes nitrogen and why?
18. Match the agricultural implements given in **Column A** with their use given in **Column B**.

Column A

- (i) Sickle
- (ii) Hoe
- (iii) Seed Drill
- (iv) Sprinkler

Column B

- (a) Ploughing
- (b) Sowing
- (c) Harvesting
- (d) Irrigation

(i)___; (ii)___; (iii)___; (iv)___

19. What are organic foods?
20. From the word puzzle given as Fig. 1.1 find atleast eight words which are 'farmer's friends.' Classify them into living and non living.

B	S	E	I	L	O	R	U	A	Z	Z
O	E	A	R	T	H	W	O	R	M	K
E	E	Z	L	G	O	H	Y	H	I	U
X	D	N	U	R	E	A	S	I	C	S
D	M	O	X	P	T	K	Y	Z	R	B
C	L	R	B	U	L	L	F	O	O	X
P	W	K	V	R	A	O	E	B	B	C
I	Q	P	G	B	G	C	W	I	E	M
M	A	N	U	R	E	V	J	U	S	P
Q	X	F	U	S	A	Z	T	M	U	V

Fig. 1.1

21. (a) Name the tool used with a tractor for sowing seeds in a field.
 (b) What are the advantages of using this tool?
22. (a) Name the practice followed for large scale rearing of farm animals.
 (b) What facilities are provided to farm animals?
23. Classify the following crops into *Khariff* and *Rabi* crops and write in the tabular column given below:

Maize, paddy, mustard, pea, gram, wheat, groundnut, cotton.

<i>Khariff</i>	<i>Rabi</i>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

LONG ANSWER QUESTIONS

24. Despite favourable climatic conditions, a farmer's crop failed to give good yield. Give the possible reasons for this.
25. As a part of eco-club activity students were asked to raise a kitchen garden in the school premises. They were provided with some materials given in the box. List the other materials you would require. How will you plan the garden? Write the steps.

khurpi, water-can, spade, shovel

Note: You have been asked to use only environment friendly materials.

26. Paddy is a major cereal crop in our country.
- In which season is paddy cultivated?
 - Discuss the method of sowing.
 - What measures must be taken to prevent spoilage and insect attack of harvested grains.
27. Unscramble the words related to crop production and its management and write in the boxes given beneath them.

- (i) I L O S S
- (ii) N G I R E H T S H
- (iii) R I T I A G I R O N
- (iv) V E R I R

Now, using the circled letters, form one word which is an activity carried out in fields, after maturation of crops.

28. Given below is a conversation between two farmers Heera and Beera.
- Heera : Brother Beera, your maize crops looks beautiful! They have grown pretty fast.
- Beera : Yes, I have sprayed urea this time. What about you?

Heera : Well, I am still relying on good old cow dung. I am saving money for buying a tractor.

Beera : That's good. Tractor saves a lot of time and labour.

Heera : Yes, it's been very labour intensive for me and now these weeds have come up.

Beera : Try weedicides, they are very effective.

Now answer the following questions.

- (i) List the practices which are not environment friendly and why?
- (ii) What is the advantage of modern agriculture implements over traditional ones?
- (iii) Name one weedicide and the precaution farmers must take during its application.

29. For discussion

Despite being one of the growing economies, our country still has a large section of population going hungry and malnourished. Do you think an efficient crop production mechanism is the only solution to this? Discuss in the class what else needs to be done to root out hunger and malnutrition from our country.

30. Terms related to agricultural practice are given below. Rearrange them in the correct sequence.

harvesting, sowing, manuring, tilling and ploughing, irrigation, de-weeding.

2

Microorganisms : Friend and Foe

MULTIPLE CHOICE QUESTIONS

- Which of the following reproduces only inside a host cell?
(a) Bacteria (c) Amoeba
(b) Virus (d) Fungus.
- A disease in human beings caused by virus is _____.
(a) typhoid (c) dysentery
(b) influenza (d) cholera
- Pathogenic micro-organisms present in host cells are killed by medicines called
(a) pain killer (c) antibiotics
(b) antibodies (d) vaccines
- The two micro-organisms which live in symbiotic association in lichens are
(a) fungus and protozoa (c) bacteria and protozoa
(b) alga and bacteria (d) alga and fungus
- The gas released during the preparation of bread is
(a) oxygen (c) nitrogen
(b) carbon dioxide (d) sulphur dioxide
- The disease caused by a protozoan and spread by an insect is _____.
(a) dengue (c) polio
(b) malaria (d) measles
- Paheli dug two pits, A and B, in her garden. In pit A, she put a polythene bag packed with some agricultural waste. In pit B, she dumped the same kind of waste but without packing it in a polythene bag. She, then covered both the pits with soil. What did she observe after a month?
(a) Waste in pit A degraded faster than that in pit B.
(b) Waste in pit B degraded faster than that in pit A.

- (c) Waste in both pits degraded almost equally.
- (d) Waste in both pits did not degrade at all.

VERY SHORT ANSWER QUESTIONS

8. Unscramble the jumbled words underlined in the following statements.
- (a) Cells of our body produce santiidobe to fight pathogens.
 - (b) curbossulite is an air-borne disease caused by a bacterium.
 - (c) Xanrhat is a dangerous bacterial disease.
 - (d) Yeasts are used in the wine industry because of their property of meronettinaf.
9. Suggest a suitable word for each of the following statements.
- (a) Chemicals added to food to prevent growth of microorganisms.
 - (b) Nitrogen-fixing microorganism present in the root nodules of legumes.
 - (c) Agent which spreads pathogens from one place to another.
 - (d) Chemicals which kill or stop the growth of pathogens.
10. Match the names of scientists given in **Column A** with the discovery made by them given in **Column B**.
- | Column A | Column B |
|-----------------------|------------------------|
| (a) Louis Pasteur | (i) Penicillin |
| (b) Robert Koch | (ii) anthrax bacterium |
| (c) Edward Jenner | (iii) Fermentation |
| (d) Alexander Fleming | (iv) small pox vaccine |
| | (v) Typhoid |
11. Name one commercial use of yeast.
12. Name the process in yeast that converts sugars into alcohol.
13. In the soil, which nutrient is enriched by blue-green algae (cyanobacteria)?
14. Why should we avoid standing close to a tuberculosis patient while he/she is coughing?

15. Polio drops are not given to children suffering from diarrhoea. Why?
16. Paheli watched her grandmother making mango pickle. After she bottled the pickle, her grand mother poured oil on top of the pickle before closing the lid. Paheli wanted to know why oil was poured? Can you help her understand why?

SHORT ANSWER QUESTIONS

17. Match the microorganisms given in the **Column A** to the group to which they belong in **Column B**.

Column A

- (a) *Lactobacillus*
- (b) *Aspergillus*
- (c) *Spirogyra*
- (d) *Paramecium*

Column B

- (i) Algae
- (ii) Protozoa
- (iii) Fungi
- (iv) Bacteria

18. Classify the following into friendly and harmful microorganisms.

Yeast, malarial parasite, *Lactobacillus*, bread mould, *Rhizobium*, *Bacillus anthracis*

Friendly

Harmful

19. While returning from the school, Boojho ate *chaat* from a street hawker. When he reached home, he felt ill and complained of stomach ache and fell ill. What could be the reason?
20. What will happen to 'pooris' and 'unused kneaded flour' if they are left in the open for a day or two?
21. (a) Name two diseases that are caused by virus.
(b) Write one important characteristic of virus.

LONG ANSWER QUESTIONS

22. Observe the Fig.2.1 and answer the questions that follows.



Fig. 2.1

- Write the name of the disease.
- Name the causative agent of this disease?
- How does the disease spread from one plant to another?
- Name any two plant diseases and the microbes that cause them.

23. How do vaccines work?

24. Observe the set up given in Fig. 2.2 and answer the following questions.

- What happens to the sugar solution in A?
- Which gas is released in A?
- What changes will you observe in B when the released gas passes through it?

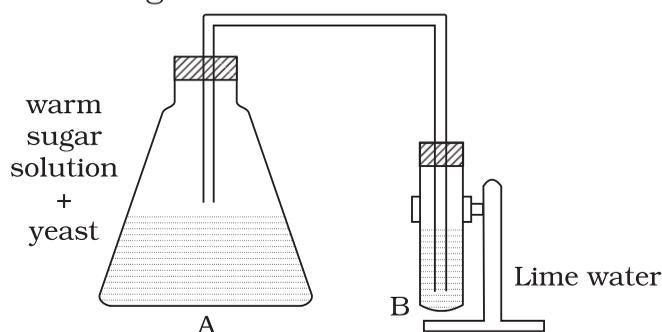


Fig. 2.2

25. Observe the Fig.2.3 and answer the following questions.

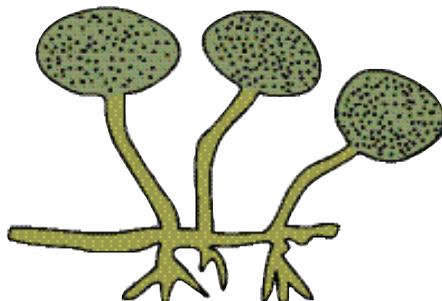


Fig. 2.3

- (a) Name the microorganism and the group to which it belongs.
 - (b) Name the food item on which the organism grows.
 - (c) Does it grow well in dry or in moist conditions?
 - (d) Is it safe to eat infected bread?
26. Give reasons for the following.
- (a) Fresh milk is boiled before consumption while processed milk stored in packets can be consumed without boiling.
 - (b) Raw vegetables and fruits are kept in refrigerators whereas jams and pickles can be kept outside.
 - (c) Farmers prefer to grow beans and peas in nitrogen deficient soils.
 - (d) Mosquitoes can be controlled by preventing stagnation of water though they do not live in water. Why?
27. How can we prevent the following diseases?
- (a) Cholera
 - (b) Typhoid
 - (c) Hepatitis A

28. Complete the following cycle given as Fig. 2.4 by filling the blanks (a), (b), (c) (d)

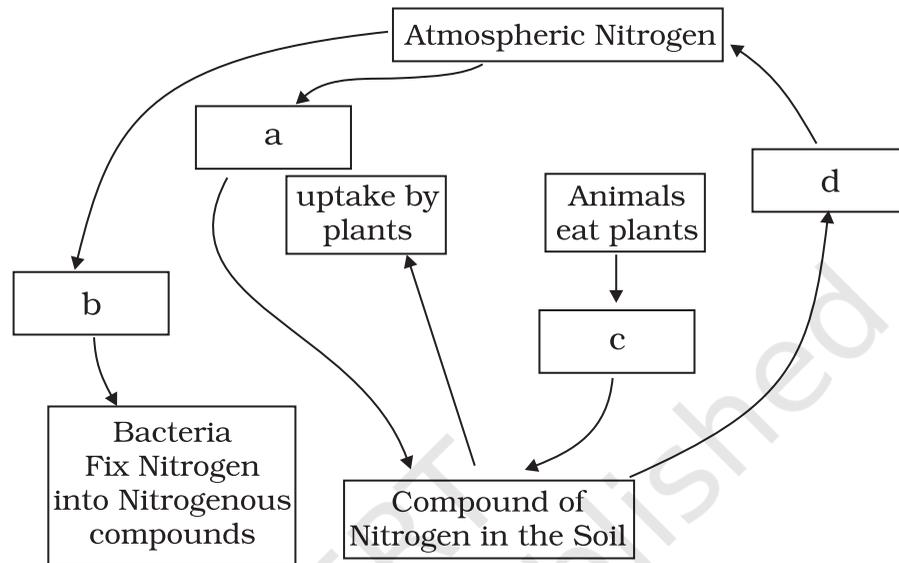


Fig. 2.4

3

Synthetic Fibres and Plastics

MULTIPLE CHOICE QUESTIONS

- Pick the synthetic fibre out of the following?
(a) Cotton (c) Jute
(b) Nylon (d) Wool
- Which of the following is a source of rayon?
(a) Wool (c) Wood pulp
(b) PET (d) Silk
- Polycot is obtained by mixing
(a) nylon and wool (c) nylon and cotton
(b) polyester and wool (d) polyester and cotton
- Which is a thermosetting plastic?
(a) Melamine (c) PVC
(b) Polythene (d) Nylon
- The material similar to silk in appearance is
(a) Nylon (c) Polyester
(b) Rayon (d) Terylene
- The most suitable material for the preparation of handles of cooking utensils is
(a) Polythene (c) Nylon
(b) PVC (d) Bakelite
- Which of the following is not a common property of plastics?
(a) Non-reactive (c) Durable
(b) Light in weight (d) Good conductor of electricity
- Which of the following represents the correct match for items in **Column A** with those in **Column B**.

Column A
I. Nylon
II. PVC
III. Bakelite

Column B
(i) Thermoplastic
(ii) Thermosetting plastic
(iii) Fibre

- (a) I-(ii), II-(iii), III-(i) (c) I-(ii), II-(i), III-(iii)
(b) I-(iii), II-(i), III-(ii) (d) I-(iii), II-(ii), III-(i)
9. Which of the following groups contain all synthetic substances?
(a) Nylon, Terylene, Wool (c) PVC, Polythene, Bakelite
(b) Cotton, Polycot, Rayon (d) Acrylic, Silk, Wool
10. The material which is commonly used for making kitchen containers is
(a) PVC (c) Teflon
(b) Acrylic (d) PET

VERY SHORT ANSWER QUESTIONS

11. Cotton is a natural polymer. What is its chemical name?
12. A synthetic fiber which looks like silk is obtained by chemical treatment of wood pulp. It is, therefore, known as artificial silk. What is its common name?
13. Terrycot is made by mixing two types of fibres. Write the names of the fibres.
14. Plastic articles are available in all possible shapes and sizes. Can you tell why?
15. Plastic is used for making a large variety of articles of daily use and these articles are very attractive. But it is advised to avoid the use of plastic as far as possible. Why?
16. Why is it not advisable to burn plastic and synthetic fabrics?
17. Select the articles from the following list which are biodegradable.
(a) paper (c) wood
(b) woolen clothes (d) aluminium can
(e) plastic bag (f) peels of vegetables
18. A bucket made of plastic does not rust like a bucket made of iron. Why?

SHORT ANSWER QUESTIONS

19. Rohit took with him some nylon ropes, when he was going for rock climbing. Can you tell why he selected nylon ropes instead of ropes made of cotton or jute?
20. A lady went to the market to buy a blanket. The shopkeeper showed her blankets made of acrylic fibres as well as made of wool. She preferred to buy an acrylic blanket. Can you guess why?
21. PVC (polyvinyl chloride) is a thermoplastic and is used for making toys, chappals, etc. Bakelite is a thermosetting plastic and is used for making electrical switches, handles of various utensils, etc. Can you write the major difference between these two types of plastics?
22. Fill in the blanks.
- (i) A polymer is a chain of many small units joined together which are called _____.
 - (ii) The synthetic fibres are also known as _____ fibres.
 - (iii) The first fully synthetic fibre was _____.
 - (iv) A fibre similar to wool is _____.
 - (v) A plastic used for making crockery is _____.
23. Match items in List A with the items of list B.

List A

- (a) nylon
- (b) PET
- (c) rayon
- (d) thermosetting plastics
- (e) teflon

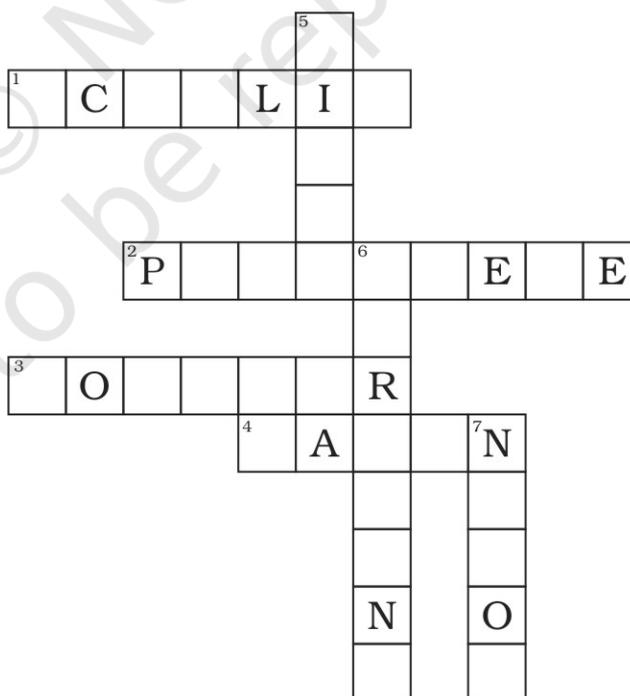
List B

- (i) non-stick coating
- (ii) electric switches
- (iii) parachutes
- (iv) polyester
- (v) artificial silk

24. Unscramble the jumbled words given below, related to synthetic materials.
- (a) anory
 - (b) lopmery
 - (c) relyteen
 - (d) laspict
 - (e) yespolter
 - (f) felton

LONG ANSWER QUESTIONS

25. Indicate whether the following statements are True or False. Also write the false statements in their correct form.
- The fabric terywool is obtained by mixing terylene and wool.
 - Synthetic fibres do not melt on heating.
 - It is risky to wear synthetic clothes while working in the kitchen.
 - Most of the plastics are biodegradable.
26. Write the importance of synthetic polymers in our life.
27. Despite being very useful it is advised to restrict the use of plastic. Why is it so? Can you suggest some methods to limit its consumption?
28. Write an activity to show that synthetic fibres are stronger than the cotton fibres.
29. Complete the crossword given below with the help of clues.



Across

1. Substance used as synthetic wool (7)
2. A plastic used for making containers and carry bags (9)
3. Substance made up of large number of smaller molecules (7)
4. Another name for this compound is artificial silk (5)

Down

5. A type of fibre obtained naturally from cocoon (4)
6. A synthetic fibre classified as polyester (8)
7. A polymer used for making rope (5)

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4

Materials : Metals and Non-Metals

MULTIPLE CHOICE QUESTIONS

- Which of the following is not a metal?
(a) copper (c) aluminium
(b) sulphur (d) iron
- The substance that will be flattened on beating with a hammer is
(a) crystal of iodine (c) piece of coal
(b) lump of sulphur (d) zinc granule
- Boojho has learnt that non-metals on beating with a hammer are generally broken into pieces. Which of the following is a non-metal?
(a) iron nail (c) copper plate
(b) aluminium wire (d) piece of coal
- Materials which can be drawn into wires are called ductile. Which of the following is not a ductile material?
(a) silver (c) sulphur
(b) copper (d) aluminium
- Metals are generally hard. Which of the following metals is an exception and can be cut with a knife?
(a) iron (c) gold
(b) sodium (d) magnesium
- Metals are generally solid. Which of the following metals is in the liquid state at room temperature?
(a) mercury (c) aluminium
(b) silver (d) sodium
- Metals generally react with dilute acids to produce hydrogen gas. Which one of the following metals does not react with dilute hydrochloric acid?
(a) magnesium (c) iron
(b) aluminium (d) copper

8. Which of the following reacts with cold water vigorously?
(a) carbon (c) magnesium
(b) sodium (d) sulphur
9. The metal which produces hydrogen gas on reaction with dilute hydrochloric acid as well as sodium hydroxide solution is
(a) copper (c) aluminium
(b) iron (d) sodium
10. Which of the following non-metals reacts and catches fire on exposure to air?
(a) phosphorus (c) sulphur
(b) nitrogen (d) hydrogen
11. Generally metallic oxides are basic and non-metallic oxides are acidic in nature. Solution of which of the following oxides in water will change the colour of blue litmus to red?
(a) sulphur dioxide (c) iron oxide
(b) magnesium oxide (d) copper oxide
12. Which of the following property is not responsible for copper to be used as electrical conduction wires?
(a) ductility (c) good conductor of electricity
(b) colour (d) it is solid

VERY SHORT ANSWER QUESTIONS

13. Name two soft metals which can be cut with a knife.
14. Which non-metal is essential for our life and all living beings inhale it during breathing?
15. Name two major non-metals which are present in fertilisers and enhance the growth of plants.
16. Which non-metal is used to disinfect water?
17. A purple coloured non-metal forms a brown solution in alcohol which is applied on wounds as an antiseptic. Name the non-metal.
18. Zinc sulphate forms a colourless solution in water. Will you observe any colour on adding copper turning in it?

19. Why are bells made of metals?
20. Which liquid metal is used for making thermometers?
21. Which of the following metals can displace the other two metals from their salt solutions?

zinc, iron, copper

SHORT ANSWER QUESTIONS

22. Paheli bought a statue made of copper. To her surprise it acquired a dull green coating after a couple of months. Explain the reason.
23. In Fig 4.1 you find that the bulb glows when an iron nail is placed between two ends of wire. Complete the following sentences on the bases of this fact.



Fig 4.1

- (a) _____ is a metal.
 - (b) Metals are good _____ of electricity.
24. If in Fig. 4.1 iron nail is replaced by a wooden stick, will the bulb glow or not? Justify your answer.
 25. Paheli prepared a blue coloured solution of copper sulphate in beaker A and placed an iron nail in it. Boojho prepared a yellowish green solution of ferrous sulphate in beaker B and placed a copper wire in it. What changes will they observe in the two beakers after an hour?

26. A doctor prescribed a tablet to a patient suffering from iron deficiency. The tablet does not look like iron. Explain.
27. Match the substances in **Column A** with their applications given in **Column B**.

Column A (Substance)	Column B (Application)
(a) oxygen	(i) for making crackers
(b) copper	(ii) for disinfecting water
(c) sulphur	(iii) all living beings inhale during breathing
(d) iron	(iv) for making electric wires
(e) chlorine	(v) for making rails

LONG ANSWER QUESTIONS

28. Some of the following statements are incorrect. Find the incorrect statements and correct them.
- The property of metals by virtue of which they can be drawn into wires is called ductility.
 - Metals are good conductor of electricity but poor conductor of heat.
 - Articles made of metals produce ringing sound when struck hard.
 - Oxides of non-metals and metals are acidic in nature.
 - A less reactive metal replaces a more reactive metal from its salt solution in water.
29. Iron is more reactive than copper. Can you write an activity to show this?
30. Fill in the blanks to complete the following paragraph.

The name of the product formed in the reaction of sulphur and _____ is sulphur dioxide gas. When sulphur dioxide is dissolved in _____, sulphurous acid is formed. The sulphurous acid turns _____ litmus paper to _____. Generally oxides of _____ are acidic in nature.

After completing the paragraph write two questions which you can raise on the basis of this information.

31. Find out the names of three metals and three non-metals from the box given as Fig 4.2.

A	X	T	M	S	P	K	L	G
X	T	S	U	L	P	H	U	R
I	L	R	H	M	N	D	I	L
C	I	R	O	N	S	E	J	K
A	L	U	M	I	N	I	U	M
R	M	U	Q	T	R	S	T	U
B	N	P	C	O	P	P	E	R
O	X	Y	G	E	N	V	W	X
N	Y	Z	T	A	B	G	H	K

Fig 4.2

32. Complete the crossword given in Fig. 4.3 with the help of the clues.

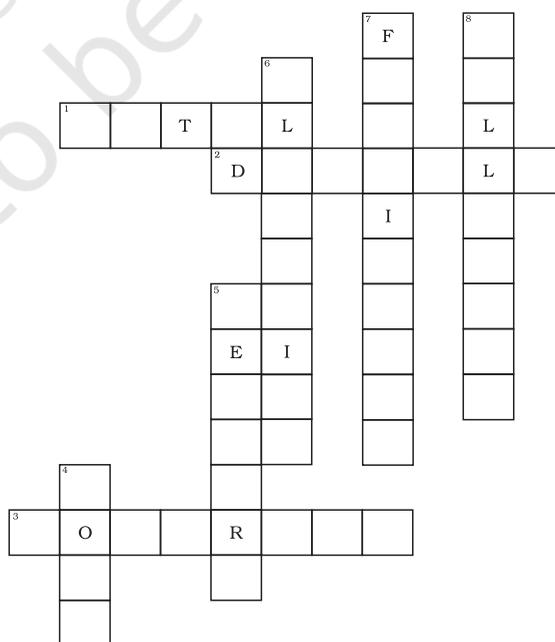


Fig 4.3

Across

1. Which is generally hard, ductile, malleable and sonorous.
2. A metal is called so it can be drawn into wires.
3. Metal bells are used because of this property.

Down

4. A metal generally used for making jewellery.
5. A metal which is liquid at room temperature.
6. A metal which reacts with acid as well as base to form hydrogen gas.
7. Substances used to enhance the growth of plants.
8. Property by virtue of which metals can be beaten into thin sheets.

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5

Coal and Petroleum

MULTIPLE CHOICE QUESTIONS

1. Various materials which are obtained from nature are called natural resources. Which of the following is not a natural resource?
(a) minerals (c) soil
(b) water (d) plastic
2. Air is a natural resource and cannot be exhausted by human activities. It is known as inexhaustible natural resource. Which of the following is another inexhaustible natural resource?
(a) coal (c) sun-light
(b) petroleum (d) minerals
3. Which of the following is a pair of exhaustible natural resources.
(a) coal and soil (c) water and petroleum
(b) air and sun-light (d) wild life and minerals
4. Coal is processed in industries to get some useful products. Which of the following is not obtained from coal?
(a) coke (c) coal gas
(b) coal tar (d) CNG
5. Exhaustible natural resources are:
(a) unlimited in quantity.
(b) not dependent on nature.
(c) limited in quantity.
(d) not exhausted by human activities.
6. Fossil fuels are obtained from:
(a) remains of non-living materials.
(b) dead remains of birds only.
(c) dead remains of insects only.
(d) dead remains of living organisms.
7. Coal is formed from the remains of
(a) vegetation only (c) both vegetation and animals
(b) animals only (d) neither vegetation nor animals

8. Which substance is formed by the carbonisation of dead vegetation?.
- (a) coal (c) coal gas
(b) coke (d) coal tar
9. Naphthalene balls are obtained from coal tar and are used as
- (a) mosquito repellent (c) moth repellent
(b) honey bee repellent (d) snake repellent
10. Which of the following is not a constituent of petroleum?
- (a) paraffin wax (c) petrol
(b) lubricating oil (d) coke
11. Petroleum was formed from organisms:
- (a) living on the land (c) living in the sea
(b) living on the plants (d) living on the rocks
12. Choose the correct statement from the following:
- (a) It is difficult to transport natural gas through pipes.
(b) The disadvantage of natural gas is that it can not be used directly for burning in homes.
(c) Natural gas is stored under high pressure as compressed natural gas.
(d) Natural gas cannot be used for power generation.

VERY SHORT ANSWER QUESTIONS

13. You are provided with a mixture of petroleum and water. Can you suggest a method to separate the two?
14. What does CNG stand for and why is it considered to be a better fuel than petrol?
15. Name the petroleum product used as fuel for stoves, lamps and jet aircrafts.
16. Fill in the blanks in the following sentences.
- (a) Coal is one of the _____ used to cook food.
(b) When heated in air, coal burns and produces mainly _____ gas.
(c) Coal tar is a black, thick _____ with an _____ smell.
(d) Petroleum, _____ and _____ are fossil fuels.
(e) Forests and coal are _____ natural resources.

17. The underlined words in the following sentences have been jumbled up. Write them in their correct form.
- Loca is obtained from mines.
 - Umpetlore is a fossil fuel.
 - Rineryfe is a place where various fractions of peroleum are separated.
 - Keenrose is a fuel used in jet crafts.
 - Nutsgilh is an example of inexhaustible natural resources.
18. Fill in the blanks.
- The slow process of conversion of dead vegetation into coal is called_____.
 - Coal and petroleum are formed from the dead remains of organisms and are known as _____.
 - The black thick liquid with _____ smell is known as coal tar.
 - During the processing of coal to get coke, coal tar and _____ are also obtained.
 - The process of separating the various constituents of petroleum is known as _____.
 - Excessive burning of fossil fuels is a major cause of _____.
19. Write True/False against the following statements.
- Oxygen in air is an exhaustible natural resource.
 - Resources which are present in unlimited quantity in nature are called exhaustible natural resources.
 - Wildlife is an exhaustible natural resource.
 - Under high temperature and pressure, dead plants get slowly converted to coal.
 - CNG is less polluting fuel than petrol and diesel.

SHORT ANSWER QUESTIONS

20. Sunlight and air are inexhaustible natural resources. Comment.
21. Some natural resources are given in a box. Classify them into the exhaustible and inexhaustible natural resources.

air, coal, natural gas, sunlight, petroleum, minerals, forests, oxygen.

22. Write two important uses of coke.
23. Write the characteristics and some important uses of coal.
24. Look at Fig. 5.1 where petroleum and natural gas deposits are shown. Why do we find oil layer above water layer?

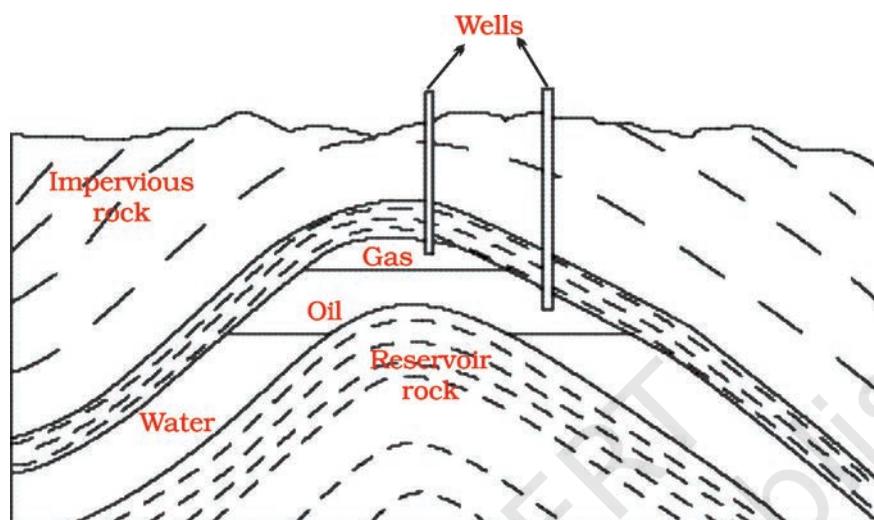


Fig. 5.1

25. Fill in the blanks and complete the story.

About 300 million years ago the earth had dense _____ in low lying wetland areas. Due to natural processes, like _____, these forests got buried under the _____. As more _____ deposited over them, they were compressed. The _____ also rose as they sank deeper and deeper. Under high _____ and high _____, dead plants got slowly converted into coal.

26. Match the items given in **Column I** with the items of **Column II**.

Column I	Column II
(a) Used for road surfacing	(i) Black gold
(b) Natural gas	(ii) Vaseline and candles
(c) Petroleum	(iii) Bitumen
(d) Paraffin wax	(iv) CNG

LONG ANSWER QUESTIONS

27. Name the products obtained and their uses when coal is processed in industry.
28. We say fossil fuels will last only for a few hundred years. Comment.
29. We read in newspapers that burning of fuels is a major cause of global warming. Explain why.
30. While driving what are the tips we must follow to save petrol/diesel/natural gas?
31. Imagine that all the exhaustible natural resources are exhausted by human activities. Do you think survival of living beings would be possible.? If yes, why?, If not, why not?
32. Why petrol is exhaustible natural resource, whereas sunlight is not? Explain.
33. Write some important uses of the various constituents of petroleum.
34. Coal reserves are said to be enough to last for another hundred years. Do you think we need to worry in such case? Why or why not?
35. What steps would you suggest for the judicious use of fossil fuels?
36. Complete the crossword Fig. 5.2 with the help of the clues:

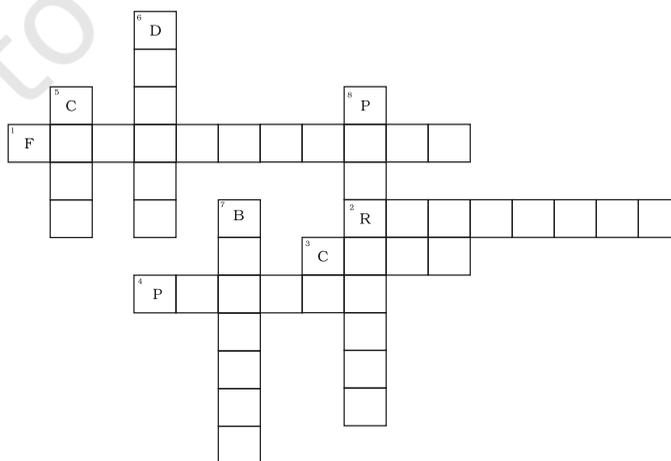


Fig. 5.2

Across

1. Fuels obtained from dead remains of living organisms. (6,5)
2. A process by which the various constituents of petroleum are separated. (8)
3. A porous black substance obtained from coal. (4)
4. Another name for motor fuel. (6)

Down

5. The substance obtained by carbonisation. (4)
6. Fuel for heavy motor vehicles. (6)
7. A petroleum product used for road surfacing. (7)
8. Dead remains of sea animals got converted into it. (9)

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6

Combustion and Flame

MULTIPLE CHOICE QUESTIONS

1. A substance which reacts with oxygen giving heat is called a combustible substance. Which, one of the following is a combustible substance?
(a) iron nail (c) stone piece
(b) glass (d) wood
2. Which one of the following has the highest calorific value?
(a) kerosene (c) LPG
(b) biogas (d) petrol
3. Magnesium ribbon on burning in air produces
(a) magnesium oxide, water and light
(b) magnesium oxide and heat
(c) magnesium oxide, heat and light
(d) magnesium oxide, water and heat
4. Which of the following is not a combustible substance?
(a) camphor (c) straw
(b) glass (d) alcohol
5. The substance that does not burn with flame is
(a) LPG (c) dry grass
(b) camphor (d) charcoal
6. On placing an inverted tumbler over a burning candle, the flame extinguishes after some time. This is because of non-availability of
(a) oxygen (c) carbon dioxide
(b) water vapours (d) wax
7. If a person's clothes catches fire, the best way to extinguish the fire is to:
(a) throw water on the clothes.
(b) use fire extinguisher.
(c) cover the person with a woolen blanket.
(d) cover the person with a polythene sheet.

8. The substance expected to have the highest ignition temperature out of the following is
- (a) kerosene (c) coal
(b) petrol (d) alcohol
9. Choose the correct statement about inflammable substances from the following.
They have:
- (a) low ignition temperature and cannot catch fire easily.
(b) high ignition temperature and can catch fire easily.
(c) low ignition temperature and can catch fire easily.
(d) high ignition temperature and cannot catch fire easily.
10. Choose the incorrect statement from the following.
Forest fires are usually due to:
- (a) carelessness of humans (c) cutting of trees
(b) heat of sun (d) lightning strike
11. The calorific value of a fuel is expressed in a unit called
- (a) kilojoule per litre (c) kilojoule per gram
(b) kilogram per millilitre (d) kilojoule per kilogram
12. In villages, people use wood as fuel because:
- (a) it is considered to be an ideal fuel.
(b) of its easy availability and low cost.
(c) it is environment friendly.
(d) it catches fire easily.
13. Which among the following is considered as the cleanest fuel?
- (a) cow dung cake (c) kerosene
(b) petrol (d) hydrogen gas
14. Choose the incorrect statement from the following.
A good fuel is one which:
- (a) is readily available.
(b) produces a large amount of heat.
(c) leaves behind many undesirable substances.
(d) burns easily in air at a moderate rate.
15. Shyam was cooking potato curry on a *chulha*. To his surprise he observed that the copper vessel was getting blackened from outside. It may be due to:
- (a) proper combustion of fuel.
(b) improper cooking of potato curry.
(c) improper combustion of the fuel.
(d) burning of copper vessel.

VERY SHORT ANSWER QUESTIONS

16. Fill in the blanks in the following sentences.
- A _____ process in which a substance reacts with _____ to give off heat is called combustion.
 - When the clothes of a person catch _____, the person is covered with a _____ to extinguish fire.
 - The _____ temperature at which a substance catches fire is called its _____ temperature.
 - The substances which have very _____ ignition temperature and can easily catch fire with a flame are called _____ substances.
 - The substances which vapourise during _____, give flame.
17. Some words (underlined) in the following sentences are jumbled up. Write them in their correct form.
- Seldie is a combustible substance.
 - Slags is a non-combustible material.
 - Chittsmack does not burn by itself.
 - Some substances on combustion produce thea and mafel.
 - The amount of heat energy produced on complete combustion of 1 kg of a fuel is called its ficalroic value.
18. Two glass jars A and B are filled with carbon dioxide and oxygen gases, respectively. In each jar a lighted candle is placed simultaneously. In which jar will the candle remain lighted for a longer time and why?
19. Anu wants to boil water quickly in a test tube. On observing the different zones of the flame, she is not able to decide which zone of the flame will be best for boiling water quickly. Help her in this activity.
20. Why is the use of diesel and petrol as fuels in automobiles being replaced by Compressed Natural Gas (CNG) in big cities?

SHORT ANSWER QUESTIONS

21. Boojho wants to separate the following materials as combustible and non-combustible. Can you help him?

Charcoal, chalk, stone, iron rod, copper coin, straw, cardboard, glass, paper, candle, wood.

22. Indicate whether the following statements are True or False. Also write the false statements in their correct form.

- (a) Air is necessary for combustion.
- (b) Magnesium is a non-combustible metal.
- (c) Carbon dioxide is an excellent fire extinguisher.
- (d) Calorific value of wood is higher than that of coal.

23. Match the items of **Column A** with the items of **Column B**.

Column A	Column B
(a) Oxides of sulphur and nitrogen	(i) fire extinguisher
(b) CNG	(ii) incomplete combustion of coal
(c) Oxygen	(iii) very low ignition temperature
(d) inflammable substance	(iv) acid rain
(e) carbon dioxide	(v) necessary for combustion
(f) carbon monoxide	(vi) fuel for automobiles.

24. Match the following for the flame of a candle.

Column A	Column B (zone)	Column C (colour)
(a) hottest part	(i) innermost zone of unburnt wax vapours	(x) blue
(b) moderately hot	(ii) middle zone of partial combustion	(y) black
(c) least hot	(iii) outer zone of complete combustion	(z) yellow

25. If you hold a piece of iron wire with a pair of tongs inside a candle flame or a Bunsen burner flame, what will you observe? Will it produce a flame?

26. Fill in the blanks using the words given in the box.

ignition, petrol, combustion, calorific value,
combustible, inflammable

- (a) A chemical process in which a substance reacts with oxygen to give off heat is called _____.
- (b) Wood, paper, CNG are _____ substances.
- (c) The lowest temperature at which a substance catches fire is called its _____ temperature.
- (d) Ignition temperature of _____ is lower than that of wood.
- (e) The substances which have very low _____ temperature and can easily catch fire with a flame are called _____ substances.
- (f) The amount of heat energy produced on complete combustion of 1kg of a fuel is called its _____.
27. People usually keep *Angethi*/burning coal in their closed rooms during winter season. Why is it advised to keep the door open?
28. Write True/False against the following statements and also correct the false statement.
- (a) A physical process in which a substance reacts with oxygen to give off heat is called combustion.
- (b) Water is the best extinguisher for fires involving electrical equipment.
- (c) Alcohol, CNG and LPG are inflammable substances.
- (d) Increased concentration of nitrogen in air is believed to cause global warming.
- (e) Greater the calorific value, better is the fuel.
- (f) Middle zone is the hottest zone of a flame.
- (g) The substances which vapourise during burning, give flame.
29. Cracker on ignition produces sound. Why?
30. What do you understand by fuel efficiency?

Across

1. Non-metal which catches fire if exposed to air (10)
3. The lowest temperature at which a substance catches fire is called its _____ temperature. (8)
5. The most common fire extinguisher. (5)

Down

2. A chemical process in which a substance reacts with oxygen to give off heat. (10)
4. Petrol is used as a _____ in automobiles. (4)
6. It is as hard as stone and black in colour. (4)

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7

Conservation of Plants and Animals

MULTIPLE CHOICE QUESTIONS

- Wild buffalo is an endangered species because
 - its population is diminishing
 - it has become extinct
 - it is found exclusively in a particular area
 - its poaching is strictly prohibited
- Which one of the following changes may occur due to desertification?
 - Decrease in atmospheric temperature.
 - Increase in water holding capacity of soil.
 - Increased chances of floods.
 - Conversion of fertile land into a desert.
- Which one of the following statements is true about a Biosphere Reserve?
 - It is a protected area where only endemic species live.
 - It is meant only for the conservation of plants and animals.
 - It is meant to conserve both, the biodiversity and the culture of that area.
 - There are no other protected areas within its limits.
- The place meant for conservation of biodiversity in their natural habitat are
 - Zoological garden
 - Botanical garden
 - Wildlife sanctuary
 - National park
 - i & ii;
 - ii & iii;
 - iii & iv;
 - i & iv
- Which one of the following statements is true about endemic species?
 - They are found exclusively in a specific habitat.
 - Endemic species can never become endangered.
 - They are found only in zoos and botanical gardens.
 - They are not affected by the destruction of their habitat.

6. Which of the following feature is correct for a wildlife sanctuary?
- (a) It is an artificially created protected area for animals.
 - (b) It is a protected area for threatened and endangered wild animals.
 - (c) It is meant for conservation of only plant species.
 - (d) Capturing and poaching of animals is strictly prohibited here.
7. Which statement is incorrect about endangered species?
- (a) Their number has decreased drastically.
 - (b) They might become extinct in the near future.
 - (c) They pose a danger to other animals.
 - (d) Their natural habitat needs to be protected.
8. What do black buck, elephant, python and golden cat together represent in a forest?
- (a) fauna
 - (b) flora
 - (c) ecosystem
 - (d) species
9. The Red Data Book keeps a record of all the
- (i) endemic species.
 - (ii) extinct species.
 - (iii) endangered plants.
 - (iv) endangered animals.
- (a) i & ii;
 - (b) ii & iii;
 - (c) iii & iv;
 - (d) i & iv
10. Migratory birds fly to far away areas during a particular time of a year. Which of the following conditions present in their habitat during that time are responsible for this behaviour?
- (i) Unavailability of food.
 - (ii) Extreme weather conditions.
 - (iii) Over crowding.
 - (iv) Lack of nesting areas.
- (a) ii & iii;
 - (b) i & ii;
 - (c) i & iv
 - (d) ii & iv.
11. In our country, large patches of forests are being cleared for cultivation of crops. The environmental impact of such a practice will lead to
- (a) soil erosion
 - (b) soil conservation
 - (c) soil pollution
 - (d) soil fertility

VERY SHORT ANSWER QUESTIONS

12. Why is it important to conserve forests?

13. Mention any one action that you have undertaken to conserve trees.
14. State whether the following statements are **True** or **False**. Correct the false statements.
 - (i) There can be a wildlife sanctuary within a biosphere reserve.
 - (ii) Plants of a particular area are collectively termed as fauna.
 - (iii) Deforestation leads to an increase in the water holding capacity of the soil.
 - (iv) Bison is an endemic fauna of Pachmarhi Biosphere Reserve.
15. Can a forest regenerate naturally in a short period of time?
16. Name the first Reserve Forest of India.

SHORT ANSWER QUESTIONS

17. Why are wildlife sanctuaries important for conservation of plants and animals?
18. Why are endemic organisms in greater danger of becoming extinct?
19. How are even small animals important in an ecosystem?
20. A new species X is introduced in a forest. How is it likely to affect the local species of that area?
21. Does soil erosion affect the fertility of soil? How?
22. What is the unique feature of the biodiversity found in Panchmarhi Biosphere Reserve?
23. Mention the aim of Forest (Conservation) Act.
24. What is biodiversity?

LONG ANSWER QUESTIONS

25. Is deforestation associated with global warming? Explain.
26. How does deforestation lead to frequent floods and droughts?
27. Why should we save paper?

8

Cell—Structure and Functions

MULTIPLE CHOICE QUESTIONS

- Choose the correct statement with respect to unicellular organisms:
 - in unicellular organisms, tissues work in co-ordination to perform different functions.
 - unicellular organisms do not require food.
 - unicellular organisms respire and reproduce.
 - all unicellular organisms move by cilia.
- Majority of cells cannot be seen directly with our naked eyes because:
 - organisms are generally unicellular
 - cells are microscopic
 - cells are present only inside the body
 - cells are grouped into tissues
- Read the different combinations of terms given below:
 - cell wall, cell membrane, nucleus, plastid
 - cell wall, nucleus, ribosome, chromosome
 - cell membrane, mitochondria, ribosome, chromosome
 - cell membrane, ribosome, mitochondria, chloroplast.The correct combination of terms with reference to an animal cell is _____.
- Which one of the following term is not a part of the nucleus?

(a) ribosome	(c) chromosome
(b) nucleolus	(d) gene
- A suitable term for the various components of cells is

(a) tissue	(c) chromosomes
(b) cell organelles	(d) genes
- The jelly-like fluid substance present in cells is called

(a) protoplasm	(c) chloroplast
(b) chromosome	(d) cytoplasm

7. Read the following pairs of examples of organisms:
- | | |
|----------------------|----------------------------------|
| (a) moss and sponge | (c) bacteria and blue-green alga |
| (b) yeast and Amoeba | (d) penicillium and Spirogyra |
- The pair that belongs to the group prokaryotes is _____
8. Read the following terms and select the pair that is related to inheritance of characters.
- | |
|-----------------------------------|
| (a) cell wall and cell membrane |
| (b) chromosome and mitochondria |
| (c) chloroplast and cell membrane |
| (d) chromosome and genes |
9. Choose the correct statement:
- | |
|---|
| (a) Genes are located in the chromosomes. |
| (b) Cell is located in the nucleus. |
| (c) Chromosomes are located in the nucleolus. |
| (d) Cell membrane surrounds the nucleus. |
10. Green colour of leaves is due to presence of the pigment _____
- | | |
|-----------------|------------------|
| (a) chlorophyll | (c) mitochondria |
| (b) ribosomes | (d) chloroplast |
11. The unit of measurement used for expressing dimension (size) of cells is:
- | | |
|----------------|----------------|
| (a) centimeter | (c) micrometer |
| (b) millimeter | (d) metre |
12. The most important function of cell membrane is that it:
- | |
|---|
| (a) controls the entry and exit of materials from cells. |
| (b) controls only the entry of materials into cells. |
| (c) controls only the exit of materials from cells. |
| (d) allows entry and exit of materials without any control. |
13. Paheli accidentally placed her hand over a flame and immediately pulled it back. She felt the sensation of heat and reacted due to the action of
- | | |
|------------------|----------------------|
| (a) blood cells | (c) nerve cells |
| (b) skin surface | (d) nucleus of cells |
14. Of the following parts of a cell listed below, name the part that is common to plant cell, animal cell and a bacterial cell.
- | | |
|-----------------|-------------------|
| (a) chloroplast | (c) cell membrane |
| (b) cell wall | (d) nucleus |

15. The thread-like structures present in the nucleus are
- (a) nucleolus
 - (b) chromosomes
 - (c) genes
 - (d) ribosomes
16. Identify the statement which is true for cells.
- (a) Cells can be easily seen with naked eyes.
 - (b) Insect's egg is not a cell.
 - (c) A single cell can perform all the functions in a unicellular organism.
 - (d) The size and shape of cells is uniform in multicellular organisms
17. Which of the following is not a cell?
- (a) Red Blood Corpuscle (RBC)
 - (b) bacterium
 - (c) spermatozoa
 - (d) virus
18. Which of the following feature will help you in distinguishing a plant cell from an animal cell?
- (a) cell wall
 - (b) cell membrane
 - (c) mitochondria
 - (d) nucleus
19. Under a microscope Paheli observes a cell that has a cell wall but no distinct nucleus. The cell that she observes is
- (a) a plant cell
 - (b) an animal cell
 - (c) a nerve cell
 - (d) a bacterial cell
20. Cheek cells do not have _____
- (a) cell membrane
 - (b) nucleus
 - (c) golgi apparatus
 - (d) plastids
21. Identify the correct statement.
- (a) Tissue is a group of dissimilar cells.
 - (b) An organ consists of similar cells.
 - (c) Vacuoles are not found in plant cells.
 - (d) Prokaryotes do not have nucleus.
22. Which of the following statements are true for eukaryotic cells?
- (i) They do not have a nuclear membrane.
 - (ii) They have a well organised nucleus.
 - (iii) They have a nuclear membrane.
 - (iv) Blue green algae are eukaryotic cells.

30. What are the functions of cell wall in plant cells?

SHORT ANSWER QUESTIONS

31. Is the following statement correct? If it is wrong, correct the statement

Statement : “Unicellular organisms do not respire, only multicellular organisms respire”

32. Match the terms given in column I with their functions given in column II and fill the blanks given below the table:

Column I	Column II
A. Chloroplast	i) carries hereditary characters
B. Cell membrane	ii) controls the activities of cells
C. Nucleus	iii) site of photosynthesis
D. Chromosome	iv) controls the movement of materials into and out of cells.

A-____; B-____; C-____; D-____

33. Observe the following diagram given as Fig. 8.1.



Fig. 8.1

Answer the following questions.

- Does it represent a plant cell or an animal cell?
- Does it represent a prokaryotic cell or an eukaryotic cell?

34. Label the parts A to E in the given as Fig. 8.2 diagram.

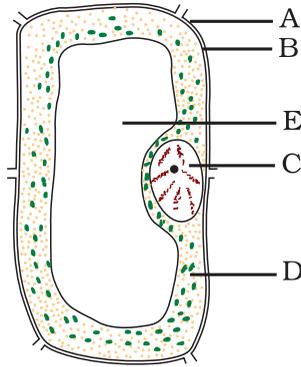


Fig. 8.2

35. Classify the following terms into cells, tissues and organs and write in the tabular column given below.

RBC, WBC, Nerve cell, blood, muscle, blood vessels, brain, heart, hand

Cell	Tissue	Organ
.....
.....
.....

36. Read the following statements and write the appropriate term against each statement.

- A. I control the functions of a cell. Who am I?
- B. I am like a policeman. I do not allow anything and everything to get in and out of the cell. Who am I?
- C. I transfer characters from parents to offsprings. Who am I?

37. Fill in the blanks with the terms given in the box below:

Nucleus, chromosomes, cell wall, cell membrane, protoplasm, cytoplasm, ribosome, cell organelles

The outermost layer of plant cells is the ___(a)___ beneath which is the ___(b)__. The term ___(c)___ refers to the jelly-like substance containing all the ___(d)__. The ___(e)___ contains thread-like structures called ___(f)__.

LONG ANSWER QUESTIONS

38. Cells consist of many organelles, yet we do not call any of these organelles as structural and functional unit of living organisms. Explain.
39. Why do plant cells have an additional layer surrounding the cell membrane? What is this layer known as?
40. The size of the cells of an organism has no relation with the size of its body. Do you agree? Give reason for your answer.

9

Reproduction in Animals

MULTIPLE CHOICE QUESTIONS

1. Sets of reproductive terms are given below. Choose the set that has an incorrect combination.
 - (a) sperm, testis, sperm duct, penis
 - (b) menstruation, egg, oviduct, uterus
 - (c) sperm, oviduct, egg, uterus
 - (d) ovulation, egg, oviduct, uterus
2. In humans, the development of fertilised egg takes place in the
 - (a) ovary
 - (b) testis
 - (c) oviduct
 - (d) uterus
3. In the list of animals given below, hen is the odd one out.

human being, cow, dog, hen

The reason for this is

- (a) it undergoes internal fertilisation.
 - (b) it is oviparous.
 - (c) it is viviparous.
 - (d) it undergoes external fertilisation.
4. Animals exhibiting external fertilisation produce a large number of gametes. Pick the appropriate reason from the following.
 - (a) The animals are small in size and want to produce more offsprings.
 - (b) Food is available in plenty in water.
 - (c) To ensure better chance of fertilisation.
 - (d) Water promotes production of large number of gametes.
 5. Reproduction by budding takes place in
 - (a) hydra
 - (b) amoeba
 - (c) paramecium
 - (d) bacteria
 6. Which of the following statements about reproduction in humans is correct?
 - (a) Fertilisation takes place externally.

- (b) Fertilisation takes place in the testes.
(c) During fertilisation egg moves towards the sperm.
(d) Fertilisation takes place in the human female.
7. In human beings, after fertilisation, the structure which gets embedded in the wall of uterus is
(a) ovum (c) foetus
(b) embryo (d) zygote
8. Aquatic animals in which fertilisation occurs in water are said to be:
(a) viviparous without fertilisation.
(b) oviparous with external fertilisation.
(c) viviparous with internal fertilisation.
(d) oviparous with internal fertilisation.
9. After fertilisation, the resulting cell which gives rise to a new individual is the
(a) embryo (c) foetus
(b) ovum (d) zygote
10. In human beings, the correct sequence of events during reproduction is
(a) gamete formation, fertilisation, zygote, embryo
(b) embryo, zygote, fertilisation, gamete formation
(c) fertilisation, gamete formation, embryo, zygote
(d) gamete formation, fertilisation, embryo, zygote

VERY SHORT ANSWER QUESTIONS

11. Although 2 cells called gametes fuse, the product formed is a single cell called zygote. Justify.
12. Stages in the lifecycle of silkworm are given below. Write them in sequential order.

pupa, silkworm, egg, silkmoth

13. What is the importance of reproduction?
14. In markets, eggs of birds are available but never eggs of dogs. Why?

15. The eggs of frogs do not have shells for protection, yet they are safe in water. How?

SHORT ANSWER QUESTIONS

16. Fill up the blanks with the terms given below:

body, asexual, binary, single, nucleus

- Amoeba is a _____ celled organism. It reproduces by _____ reproduction. The process of reproduction begins by the division of its _____ into two. This is followed by the division of its _____ into two. This type of reproduction is called _____ fission.
17. The term metamorphosis is not used while describing human development. Why?
18. Mother gives birth to a baby but the baby has characters of both parents. How is this possible?
19. How is reproduction in hydra different from that in amoeba?
20. State whether the following statements are **True** or **False**. If false, correct the statement:
- (a) External fertilisation can occur both in water and on land.
 - (b) The eggs of fish are covered by hard shells for protection.
 - (c) Human egg has a head, middle piece and tail.
 - (d) In adult human females, a single mature egg is released into an oviduct every month.
21. Why do only male gametes have a tail?

22.  What does Fig. 9.1 represent?

Fig. 9.1

23. Observe the figure given as Fig. 9.2 and answer the questions that follow.

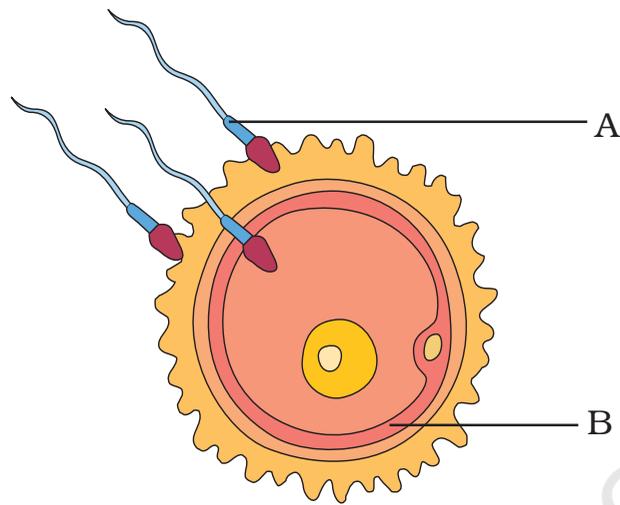


Fig. 9.2

- (a) Label A and B.
(b) Identify the process.
(c) What happens during this process and what is formed?

LONG ANSWER QUESTIONS

24. How can we say that fish exhibits external fertilisation?

25.

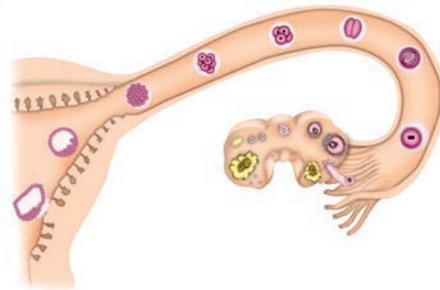


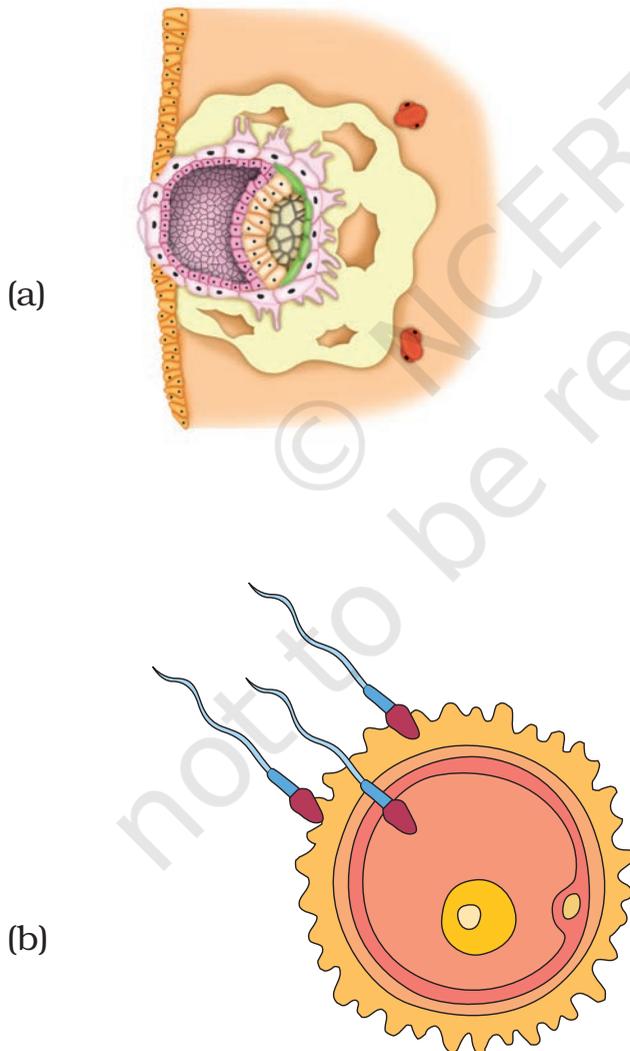
Fig. 9.3

After observing Fig. 9.3 answer the following.

- a. Read the following statements and label them in the figure:
 - (i) The part which produces female gametes.
 - (ii) The part where development of the baby takes place.
 - (iii) The part through which the developing embryo passes to reach the uterus.
- b. Explain the future development of the embryo that would take place after it gets embedded in the uterus.

26. Hens and frogs are both oviparous exhibiting different types of fertilisation. Explain.

27. Observe the following figures.



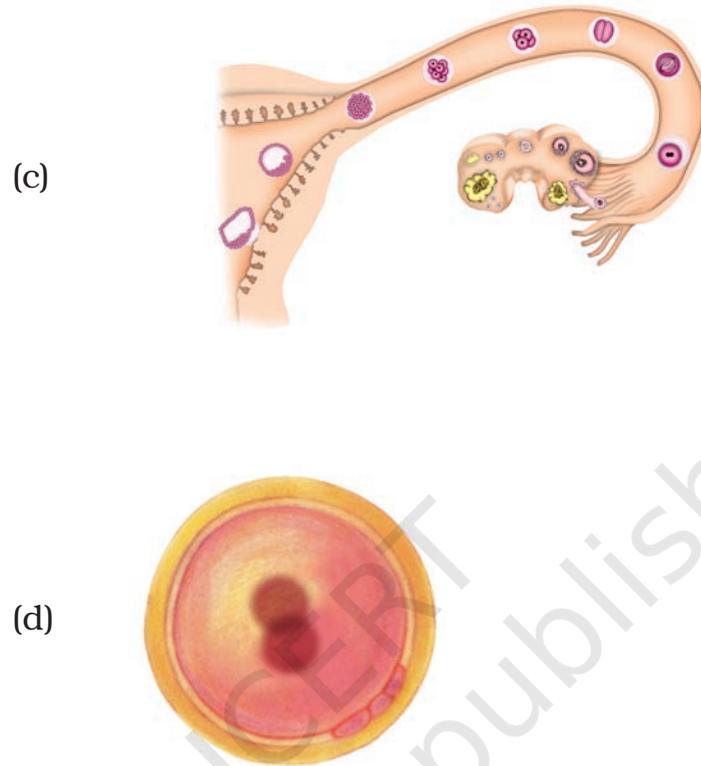


Fig. 9.4

- (i) Identify the stages **a** to **d** in Fig. 9.4 during development of human baby.
- (ii) Arrange the stages in correct sequence of development.
- (iii) Explain the development that takes place in any one stage.

10

Reaching the Age of Adolescence

MULTIPLE CHOICE QUESTIONS

- The belief that the mother is completely responsible for the sex of the child is wrong because the child
 - gets sex chromosome only from the mother.
 - develops in the body of the mother.
 - gets one sex chromosome from the mother and the other from the father.
 - gets sex chromosome only from the father.
- AIDS can spread from an infected person to another person through
 - sharing food
 - blood transfusion
 - sharing comb
 - a mosquito bite
- Given below are events that lead to pregnancy and development of embryo.
 - Fertilization of egg
 - Maturation of egg
 - Release of egg
 - Embedding of embryo in thickened uterine wall.

Which of the following options gives the correct order of sequence in which they occur?

- i, ii, iii, iv,
 - ii, i, iii, iv
 - i, iv, ii, iii
 - ii, iii, i, iv.
- For the metamorphosis of tadpoles which of the following elements must be available in water?
 - chlorine
 - carbon
 - sulphur
 - iodine
 - The most conspicuous visible change that occurs in boys during puberty is:
 - development in voice box.
 - increase in height.

- (c) production of sperms.
 - (d) increased sweating.
6. Structures present in a cell which is responsible for determination of the sex of a baby is
- (a) cytoplasm
 - (b) cell membrane
 - (c) nucleus
 - (d) chromosome

VERY SHORT ANSWER QUESTIONS

7. Unscramble the underlined words in the following sentences.
- (a) Reproductive life of a woman lasts from hacreemn to spauoemen.
 - (b) The development of a caterpillar to an adult butterfly is termed as poommertaissh.
 - (c) The overgrowth of sumselc in xalnyr leads to the hoarse voice in adolescent boys.
 - (d) Dannalier helps the body to adjust and fight the stress.
8. Complete the following sentences.
- (a) In females, the uterine wall thickens to receive the _____.
 - (b) Endocrine glands release hormones directly into _____ for transportation to the _____.
 - (c) The sex hormones, _____ and estrogen are responsible for the development of _____ characters.
 - (d) Release of sex hormones is under the control of a hormone secreted from the _____.
9. Give a suitable word for each of the following statements.
- (a) The site which responds to a hormone.
 - (b) Name of a gland which transports secretions through ducts.
 - (c) Chemicals which control changes at adolescence stage.
 - (d) It marks the beginning of reproductive period.
10. Name the hormone that is released by testes at the onset of puberty.
11. Name the female hormone produced by ovaries that helps in development of mammary glands.

SHORT ANSWER QUESTIONS

12. Match the hormones given in **Column A** with their deficiency disease given in **Column B**.

Column A	Column B
(a) thyroxine	(i) salt imbalance
(b) growth hormone	(ii) diabetes
(c) Insulin	(iii) goitre
(d) Adrenal hormone	(iv) Dwarfism

13. Lila always eats only *dal* and rice in every meal. She often falls ill and has become prone to diseases. Can you suggest changes in her diet which can make her healthy and free from disease?
14. Mention any two features each that are seen in boys and girls each to distinguish them from each other at puberty.
15. We should avoid taking medicines/drugs unless prescribed by a doctor. Give reasons.
16. A few of Paheli's classmates eat potato chips and burgers regularly during the recess at school. Are they healthy eating habits? Give reasons.
17. Read the statements given below and fill up the blanks with the correct words listed in the box.

deep, ductless, nutrients, thyroxine

- (a) The meal that includes all _____ is a balanced diet.
- (b) Insufficient production of _____ in the tadpoles leads to their incomplete development.
- (c) Endocrine glands are also called _____ glands.
- (d) After attaining puberty boys develop a _____ voice.

18. Fill the blank circles in figure 10.1 and identify the sex of child A and B.

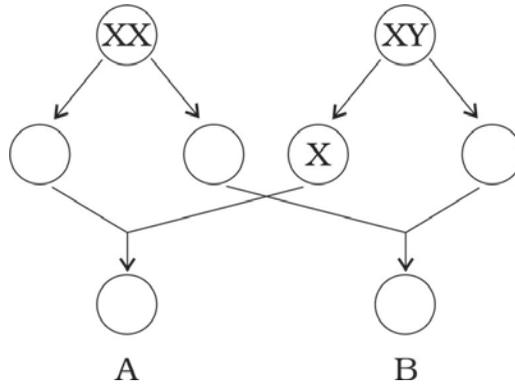


Fig. 10.1

LONG ANSWER QUESTIONS

19. During adolescence, the body of boys and girls undergoes certain changes. Given below are a few of those changes.
- Broad shoulders
 - Wider chests
 - Wider region below waist
 - Development of muscles
 - Development of mammary glands
 - Growth of facial hair
 - Acne and pimples on face
 - Development of sex organs
 - High-pitched voice
 - Growth of pubic hair.

Categorise these changes into those that occur in boys and those that occur in girls and fill in the table given below.

Body changes during Adolescence	
Boys	Girls

20. In Fig.10.2 mark the positions of the endocrine glands which release the hormones that:

- (a) controls the release of sex hormones.
- (b) is responsible for the secondary sexual characters in boys.
- (c) prevents diabetes.
- (d) maintains the correct salt balance in the blood.

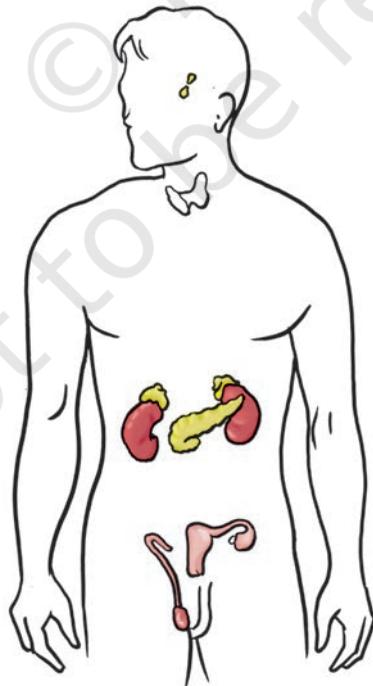
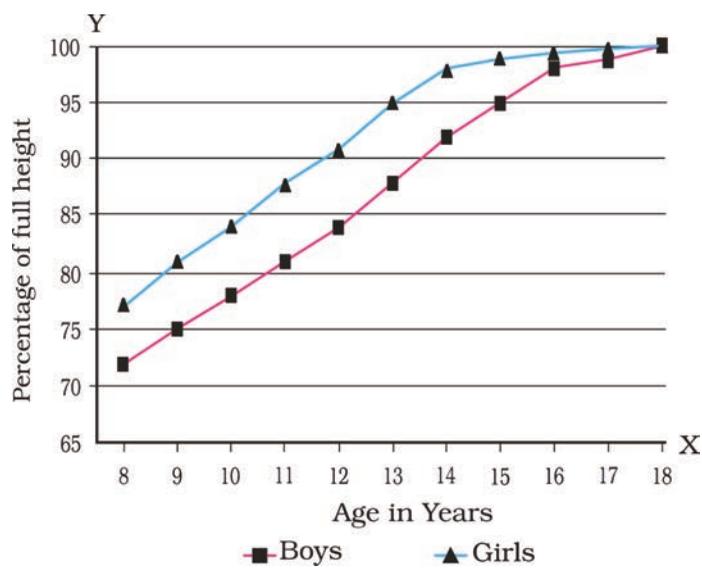


Fig.10.2

21. Given below are certain food items required for proper nourishment of adolescents. Name the nutrients present in the food items and write their functions.

S. No.	Food items	Major Nutrient	Functions
1.	Pulses and nuts		
2.	Oranges and Amla		
3.	Sugar, Roti		
4.	Oils		
5.	Vegetables		

22. Name the hormone which would be released during the following situations:
- a frightened person.
 - growth of a child to adult.
 - development of caterpillar to moth.
 - development of tadpole to frog.
23. In human females, each time during maturation and release of egg the inner wall of uterus thickens. Is this thickening permanent? Give reasons.
24. John and Radha were classmates since childhood. When Radha became eleven years old, she developed a little swelling on her neck. She visited the doctor who started medication for her. After a few years, John also developed a slight protrusion on his throat. He got worried and went to the doctor. But, the doctor assured him that it was a normal feature in boys while they are growing up. Can you think of any reasons for the difference in diagnoses?
25. Observe the chart and graph given in Fig. 10.3 carefully and answer the following questions.



Age in Years	% of full height	
	Boys	Girls
8	72%	77%
9	75%	81%
10	78%	84%
11	81%	88%
12	84%	91%
13	88%	95%
14	92%	98%
15	95%	99%
16	98%	99.5%
17	99%	100%
18	100%	100%

Fig.10.3

- (a) Which of the line represents the height of boys?
 - (b) Which line represents the height of girls?
 - (c) What is the difference between the pattern of increase in the height of boys and girls?
 - (d) Is this pattern true for each individual?
26. Salma had a very soft and smooth skin during her childhood. As she entered adolescence, she developed pimples on her face. The skin specialist advised her to wash her face at regular intervals. Can you explain the reasons for the appearance of pimples on her face and suggest ways to prevent them?
27. Our government has legalised the age for marriage in boys and girls. Give reasons as to why one should get married after a certain age.
28. It is believed that height of a child depends upon the genes inherited from parents. However, it is often seen that tall parents may have short children and vice-versa. Are there factors other than genes, that can cause these variations?

11

Force

MULTIPLE CHOICE QUESTIONS

1.



Fig. 11.1

In Fig 11.1, two boys A and B are shown applying force on a block. If the block moves towards the right, which one of the following statements is correct?

- (a) Magnitude of force applied by A is greater than that of B.
- (b) Magnitude of force applied by A is smaller than that of B.
- (c) Net force on the block is towards A.
- (d) Magnitude of force applied by A is equal to that of B.

2.



Fig. 11.2

In the circuit shown in Fig.11.2, when the circuit is completed, the hammer strikes the gong. Which of the following force is responsible for the movement of hammer?

- (a) gravitational force alone (c) magnetic force alone
(b) electrostatic force alone (d) frictional force alone
3. During dry weather, while combing hair, sometimes we experience hair flying apart. The force responsible for this is
(a) force of gravity. (c) force of friction.
(b) electrostatic force. (d) magnetic force.
4. Fig.11.3 shows a container filled with water. Which of the following statements is correct about pressure of water?

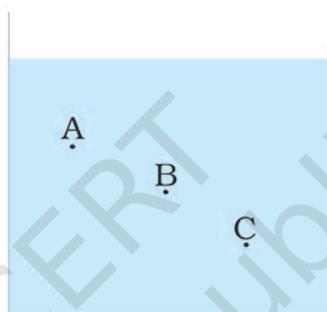


Fig.11.3

- (a) Pressure at A > Pressure at B > Pressure at C
(b) Pressure at A = Pressure at B = Pressure at C
(c) Pressure at A < Pressure at B > Pressure at C
(d) Pressure at A < Pressure at B < Pressure at C
5. Two objects repel each other. This repulsion could be due to
(a) frictional force only
(b) electrostatic force only
(c) magnetic force only
(d) either a magnetic or an electrostatic force
6. Which one of the following forces is a contact force?
(a) force of gravity (c) magnetic force
(b) force of friction (d) electrostatic force

7.

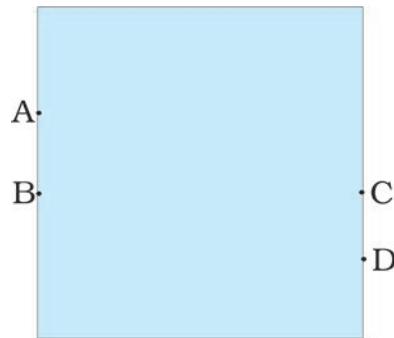
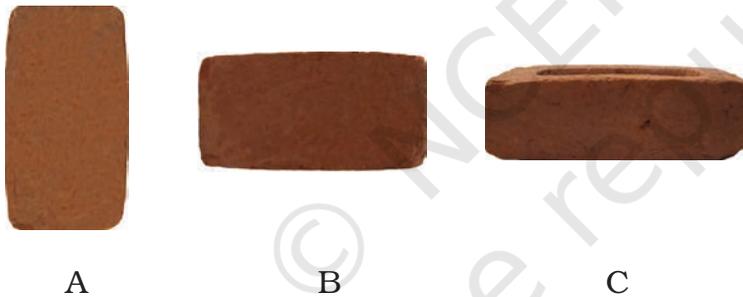


Fig. 11.4

A water tank has four taps fixed at points A, B, C, D as shown in Fig. 11.4. The water will flow out at the same pressure from taps at

- (a) B and C (c) C and D
(b) A and B (d) A and C

8.



A brick is kept in three different ways on a table as shown in Fig. 11.5. The pressure exerted by the brick on the table will be

- (a) maximum in position A (c) maximum in position C
(b) maximum in position B (d) equal in all cases.

VERY SHORT ANSWER QUESTIONS

9. A ball of dough is rolled into a flat chapatti. Name the force exerted to change the shape of the dough.
10. Where do we apply a force while walking?

11. A girl is pushing a box towards east direction. In which direction should her friend push the box so that it moves faster in the same direction?

12.

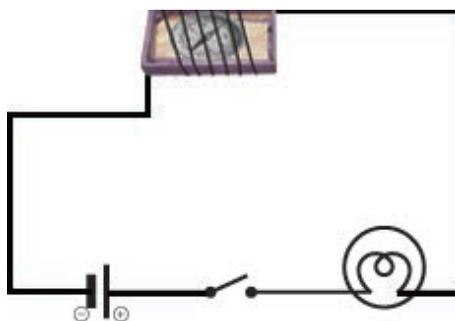


Fig. 11.6

In the circuit shown in Fig.11.6, when the key is closed, the compass needle placed in the match box deflects. Name the force which causes this deflection.

13. During dry weather, clothes made of synthetic fibre often stick to the skin. Which type of force is responsible for this phenomenon?
14. While sieving grains, small pieces fall down. Which force pulls them down?
15. Does force of gravity act on dust particles?
16. A gas filled balloon moves up. Is the upward force acting on it larger or smaller than the force of gravity?
17. Does the force of gravitation exist between two astronauts in space?

SHORT ANSWER QUESTIONS

18. A chapati maker is a machine which converts balls of dough into chapati's. What effect of force comes into play in this process?

19.



Fig. 11.7

- Fig. 11.7 shows a man with a parachute. Name the force which is responsible for his downward motion. Will he come down with the same speed without the parachute?
20. Two persons are applying forces on two opposite sides of a moving cart. The cart still moves with the same speed in the same direction. What do you infer about the magnitudes and direction of the forces applied.
21. Two thermocol balls held close to each other move away from each other. When they are released, name the force which might be responsible for this phenomenon. Explain.
22. Fruits detached from a tree fall down due to force of gravity. We know that a force arises due to interaction between two objects. Name the objects interacting in this case.
23. A man is pushing a cart down a slope. Suddenly the cart starts moving faster and he wants to slow it down. What should he do?

24.



Fig. 11.8

Fig. 11.8 shows a car sticking to an electromagnet. Name the forces acting on the car? Which one of them is larger?

LONG ANSWER QUESTIONS

25. An archer shoots an arrow in the air horizontally. However, after moving some distance, the arrow falls to the ground. Name the initial force that sets the arrow in motion. Explain why the arrow ultimately falls down.
26. It is difficult to cut cloth using a pair of scissors with blunt blades. Explain.
27. Two rods of the same weight and equal length have different thickness. They are held vertically on the surface of sand as shown in Fig.11.9. Which one of them will sink more? Why?

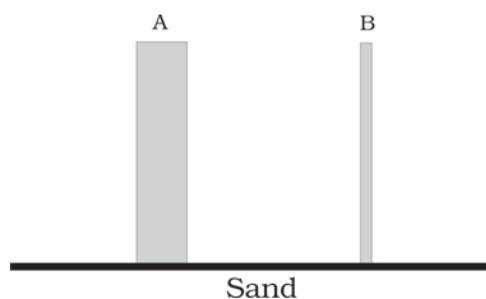


Fig. 11.9

28. Two women are of the same weight. One wears sandals with pointed heels while the other wears sandals with flat soles. Which one would feel more comfortable while walking on a sandy beach? Give reasons for your answer.
29. It is much easier to burst an inflated balloon with a needle than by a finger. Explain.
30. Observe the vessels A, B, C and D shown in Fig.11.10 carefully.

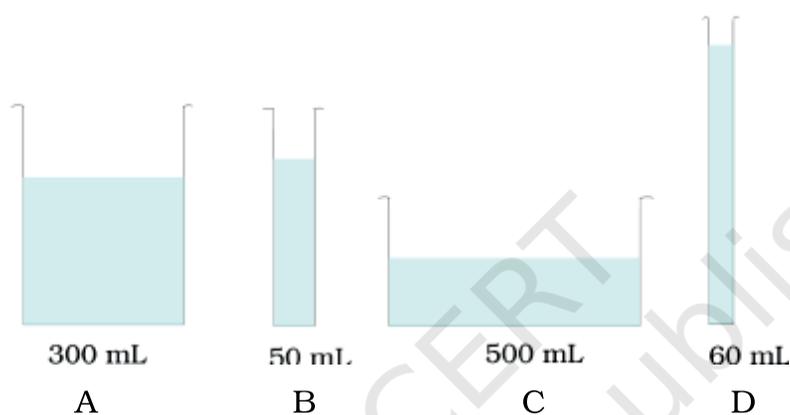


Fig. 11.10

Volume of water taken in each vessel is as shown. Arrange them in the order of decreasing pressure at the base of each vessel. Explain.

12

Friction

MULTIPLE CHOICE QUESTIONS

- Whenever the surfaces in contact tend to move or move with respect to each other, the force of friction comes into play
 - only if the objects are solid.
 - only if one of the two objects is liquid.
 - only if one of the two objects is gaseous.
 - irrespective of whether the objects are solid, liquid or gaseous.
-



Fig. 12.1

In Fig.12.1, a boy is shown pushing the box from right to left. The force of friction will act on the box

- from right to left (\leftarrow)
 - from left to right (\rightarrow)
 - vertically downwards (\downarrow)
 - vertically upwards (\uparrow)
- To sharpen the blade of a knife by rubbing it against a surface, which of the following will be most suitable?
 - stone
 - plastic block
 - wooden block
 - glass block
 - A toy car released with the same initial speed will travel farthest on
 - muddy surface
 - polished marble surface
 - cemented surface
 - brick surface

5. If we apply oil on door hinges, the friction will
- (a) increase (c) disappear altogether
(b) decrease (d) will remain unchanged
6. Which of the following statements is incorrect?
- (a) Friction acts on a ball rolling along the ground.
(b) Friction acts on a boat moving on water.
(c) Friction acts on a bicycle moving on a smooth road.
(d) Friction does not act on a ball moving through air.
7. A boy rolls a rubber ball on a wooden surface. The ball travels a short distance before coming to rest. To make the same ball travel longer distance before coming to rest, he may
- (a) spread a carpet on the wooden surface.
(b) cover the ball with a piece of cloth.
(c) sprinkle talcum powder on the wooden surface.
(d) sprinkle sand on the wooden surface.
8. In a large commercial complex there are four ways to reach the main road. One of the path has loose soil, the second is laid with polished marble, the third is laid with bricks and the fourth has gravel surface. It is raining heavily and Paheli wishes to reach the main road. The path on which she is least likely to slip is
- (a) loose soil. (c) bricks.
(b) polished marble. (d) gravel.

VERY SHORT ANSWER QUESTIONS

9. Two blocks of iron of different masses are kept on a cemented floor as shown in Fig.12.2. Which one of them would require a larger force to move it from the rest position?



Fig. 12.2

10. Will force of friction come into play when a rain drop rolls down a glass window pane?
11. Two boys are riding their bicycles on the same concrete road. One has new tyres on his bicycle while the other has tyres that are old and used. Which of them is more likely to skid while moving through a patch of the road which has lubricating oil spilled over it?
12. Fig.12.3 shows two boys applying force on a box. If the magnitude of the force applied by each is equal, will the box experience any force of friction?



Fig. 12.3

13. Imagine that an object is falling through a long straight glass tube held vertical; air has been removed completely from the tube. The object does not touch the walls of the tube. Will the object experience any force of friction?

SHORT ANSWER QUESTIONS

14. You might have noticed that when used for a long time, slippers with rubber soles become slippery. Explain the reason.
15. Is there a force of friction between the wheels of a moving train and iron rails? If yes, name the type of friction. If an air cushion can be introduced between the wheel and the rail, what effect will it have on the friction?

16. Cartilage is present in the joints of our body, which helps in their smooth movement. With advancing age, this cartilage wears off. How would this affect the movement of joints?
17. While playing tug of war (Fig.12.4), Preeti felt that the rope was slipping through her hands. Suggest a way out for her to prevent this.



Fig. 12.4

18. The handle of a cricket bat or a badminton racquet is usually rough. Explain the reason.
19. Explain why the surface of mortar and pestle (silbatta) used for grinding is etched again after prolonged use?
20. A marble is allowed to roll down an inclined plane from a fixed height. At the foot of the inclined plane, it moves on a horizontal surface (a) covered with silk cloth (b) covered with a layer of sand and (c) covered with a glass sheet. On which surface will the marble move the shortest distance. Give reason for your answer.
21. A father and son pushed their car to bring it to the side of road as it had stalled in the middle of the road. They experienced that although they had to push with all their might initially to move the car, the push required to keep the car rolling was smaller, once the car started rolling. Explain.

LONG ANSWER QUESTIONS

22. When the cutting edge of a knife is put against a fast rotating stone to sharpen it, sparks are seen to fly. Explain the reason.
23. We have two identical metal sheets. One of them is rubbed with sand paper and the other with ordinary paper. The one rubbed with sand paper shines more than the other. Give reason.
24. While travelling on a rickshaw, you might have experienced that if the seat cover is very smooth, you tend to slip when brakes are applied suddenly. Explain.
25. Two friends are trying to push a heavy load as shown in Fig.12.5. Suggest a way which will make this task easier for them.



Fig. 12.5

13

Sound

MULTIPLE CHOICE QUESTIONS

- A list of mediums is given below.
 - wood
 - water
 - air
 - vacuumIn which of these mediums can sound travel?
 - i & ii only
 - i, ii & iii only
 - iii & iv only
 - ii, iii & iv only
- The loudness of sound depends on:
 - its amplitude.
 - its frequency.
 - its time period.
 - its speed.
- Which of the following statements are correct?
 - Sound is produced by vibrations.
 - Sound requires a medium for propagation.
 - Light and sound both require a medium for propagation.
 - Sound travels slower than light.
 - i & ii only
 - i, ii & iii only
 - ii, iii & iv only
 - i, ii & iv only
- An object is vibrating at 50 hertz. What is its time period?
 - 0.02 s
 - 2 s
 - 0.2 s
 - 20.0 s
- In order to reduce the loudness of a sound we have to
 - decrease its frequency of vibration of the sound.
 - increase its frequency of vibration of the sound.
 - decrease its amplitude of vibration of the sound.
 - increase its amplitude of vibration of the sound.
- Loudness of sound is measured in units of
 - decibel (dB)
 - hertz (Hz)
 - metre (m)
 - metre/second (m/s)

7. The loudness of sound is determined by the
 - (a) amplitude of vibration
 - (b) ratio of amplitude and frequency of vibration
 - (c) frequency of vibration
 - (d) product of amplitude and frequency of vibration
8. 1 hertz is equal to
 - (a) 1 vibration per minute
 - (b) 10 vibrations per minute
 - (c) 60 vibrations per minute
 - (d) 600 vibrations per minute
9. Pitch of sound is determined by its
 - (a) frequency
 - (b) amplitude
 - (c) speed
 - (d) loudness
10. Ultrasound has frequency of vibration
 - (a) between 20 and 20,000 Hz
 - (b) below 20 Hz
 - (c) above 20,000 Hz
 - (d) between 500 and 10,000 Hz

VERY SHORT ANSWER QUESTIONS

11. Lightning can be seen the moment it occurs. Paheli observes lightning in her area. She hears the sound 5 s after she observed lightning. How far is she from the place where lightning occurs? (speed of sound = 330 m/s).
12. Does any part of our body vibrate when we speak? Name the part.
13. Boojho saw a cracker burst at night at a distance from his house. He heard the sound of the cracker a little later after seeing the cracker burst. Give reason for the delay in hearing the sound.
14. When we hear a sound, does any part of our body vibrate? Name the part.
15. Name two musical instruments which produce sound by vibrating strings?

SHORT ANSWER QUESTIONS

16. A simple pendulum makes 10 oscillations in 20 seconds. What is the time period and frequency of its oscillation?
17. We have learnt that vibration is necessary for producing sound. Explain why the sound produced by every vibrating body cannot be heard by us?
18. Suppose a stick is struck against a frying pan in vacuum. Will the frying pan vibrate? Will we be able to hear the sound? Explain.
19. Two astronauts are floating close to each other in space. Can they talk to each other without using any special device? Give reasons.
20. List three sources of noise pollution in your locality.

LONG ANSWER QUESTIONS

21. We have a stringed musical instrument. The string is plucked in the middle first with a force of greater magnitude and then with a force of smaller magnitude. In which case would the instrument produce a louder sound?
22. How is sound produced and how is it transmitted and heard by us?
23. An alarm bell is kept inside a vessel as shown in Fig. 13.1. A person standing close to it can distinctly hear the sound of alarm. Now if the air inside the vessel is removed completely how will the loudness of alarm get affected for the same person?

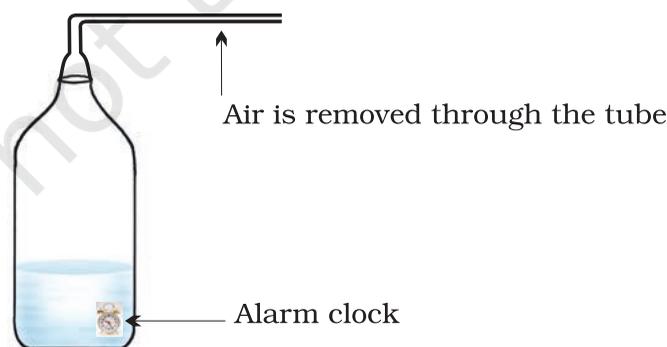


Fig. 13.1

24. The townhall building is situated close to Boojho's house. There is a clock on the top of the townhall building which rings the bell every hour. Boojho has noticed that the sound of the clock appears to be much clearer at night. Explain.
25. Suggest three measures to limit noise pollution in your locality.

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14

Chemical Effects of Electric Current

MULTIPLE CHOICE QUESTIONS

- An electric current can produce
 - heating effect only.
 - chemical effect only.
 - magnetic effect only.
 - chemical, heating, and magnetic effects.
- Boojho and Paheli performed experiments taking similar bulbs and cells but two different solutions A and B as shown in Fig.14.1.

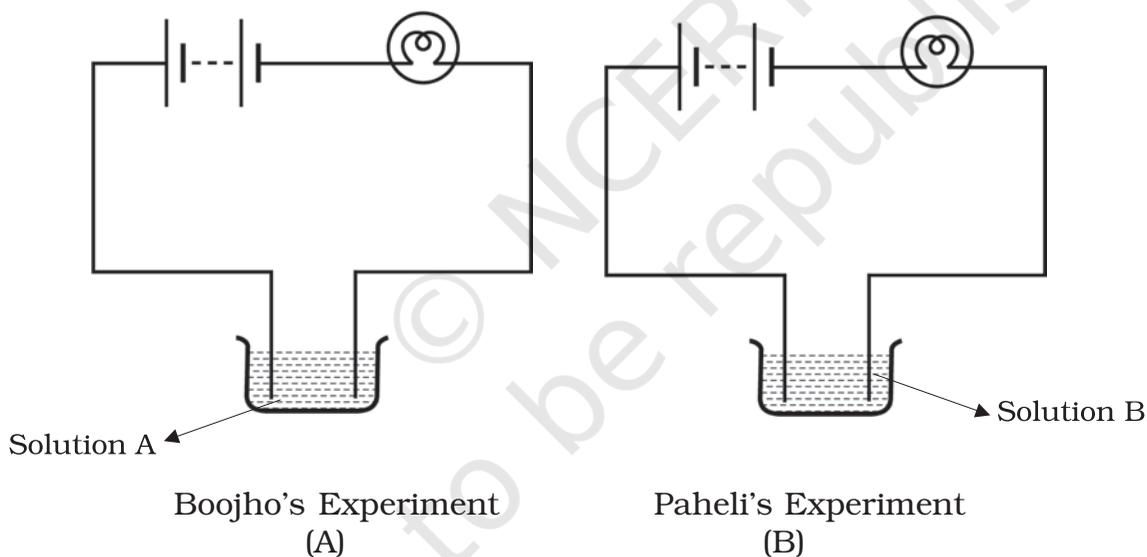


Fig.14.1

They found that the bulb in the setup A glows more brightly as compared to that of the setup B. You would conclude that

- higher current is flowing through the circuit in setup A.
- higher current is flowing through the circuit in setup B.
- equal current is flowing through both the circuits.
- the current flowing through the circuits in the two setups cannot be compared in this manner.

3. Boojho's uncle has set up an electroplating factory near his village. He should dispose off the waste of the factory
- (a) in the nearby river.
 - (b) in the nearby pond.
 - (c) in the nearby cornfield.
 - (d) according to the disposal guidelines of the local authority.
4. When electric current is passed through a conducting solution, there is a change of colour of the solution. This indicates
- (a) the chemical effect of current.
 - (b) the heating effect of current.
 - (c) the magnetic effect of current.
 - (d) the lightning effect of current.
5. Which one of the following solutions will not conduct electricity?
- (a) lemon juice
 - (b) vinegar
 - (c) tap water
 - (d) vegetable oil
6. Which of the following metals is used in electroplating to make objects appear shining?
- (a) iron
 - (b) copper
 - (c) chromium
 - (d) aluminium

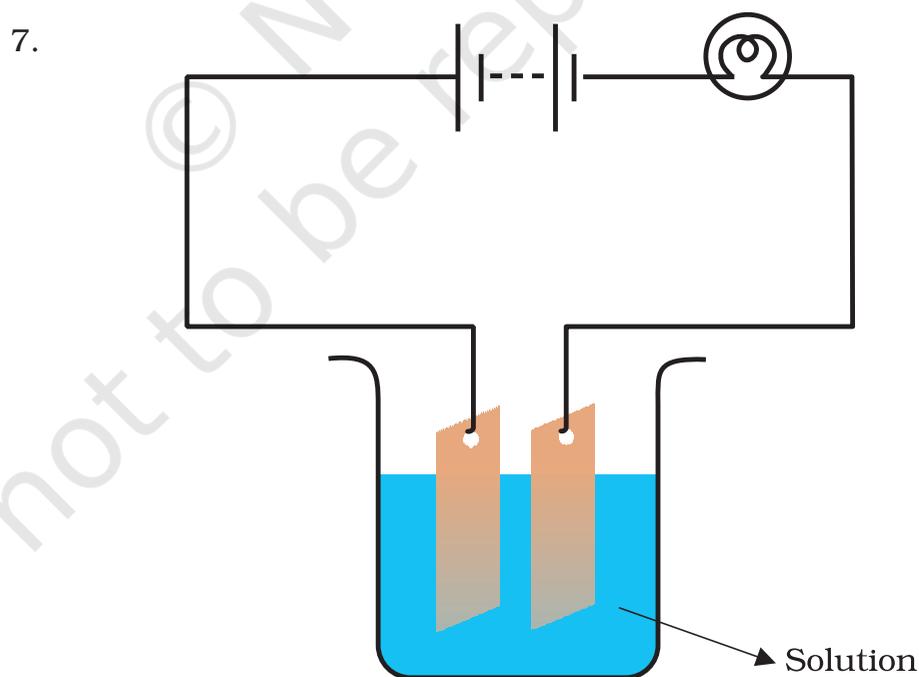


Fig. 14.2

Which of the following solutions will not make the bulb in Fig 14.2 glow?

- (a) sodium chlorides
- (b) copper sulphate
- (c) silver nitrate
- (d) sugar solution in diluted water

VERY SHORT ANSWER QUESTIONS

8. Fill in the blanks
- (a) The object to be electroplated is taken as _____ electrode.
 - (b) One of the most common applications of chemical effect of electric current is _____.
 - (c) Small amount of a mineral salt present naturally in water makes it a _____ of electricity.
 - (d) Electroplating of _____ is done on objects like water taps and cycle bell to give them a shiny appearance.
9. Why is a layer of zinc coated over iron?
10. Will the solution of sugar in distilled water conduct electricity?
11. Name the effect of current responsible for the glow of the bulb in an electric circuit.

SHORT ANSWER QUESTIONS

12. Boojho made the circuit given in Fig. 14.3 and observed that the bulb did not glow. On Paheli's suggestion he added one more cell in the circuit. The bulb now glows. Explain.

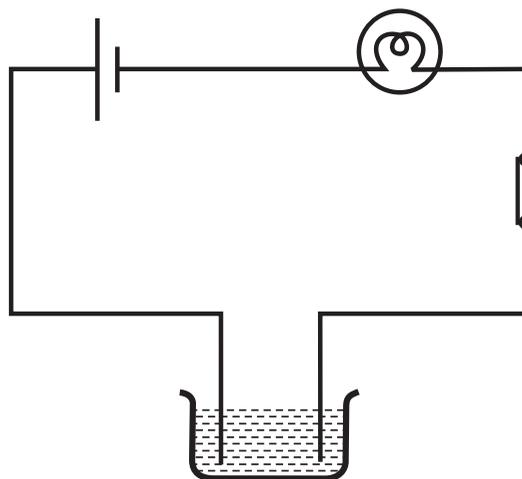


Fig. 14.3

13. Paheli set up an experiment using liquid A in the beaker as shown in Fig. 14.4. She observed that the bulb glows. Then she replaced the liquid A by another liquid B. This time the bulb did not glow. Boojho suggested replacing the bulb by an LED. They observed that the LED glows. Explain.

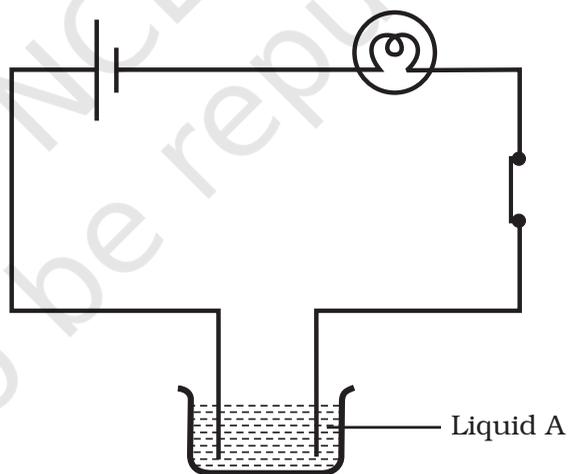


Fig. 14.4

14. Paheli wants to deposit silver on an iron spoon. She took silver nitrate (AgNO_3) solution in a beaker and setup a simple circuit for electroplating. Which terminal of the battery should the spoon be connected to? What material should the other electrode be made of?

15. Why is tin electroplated on iron to make cans used for storing food?

16. Observe Fig. 14.5.

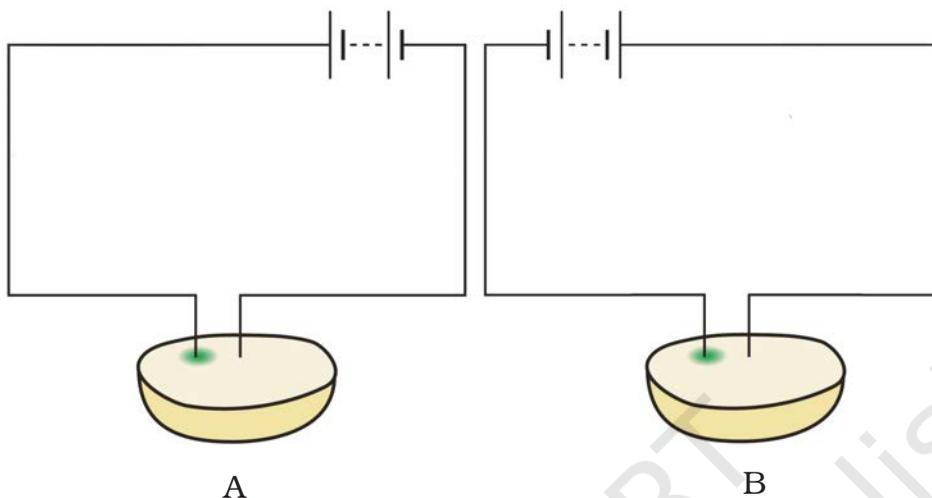
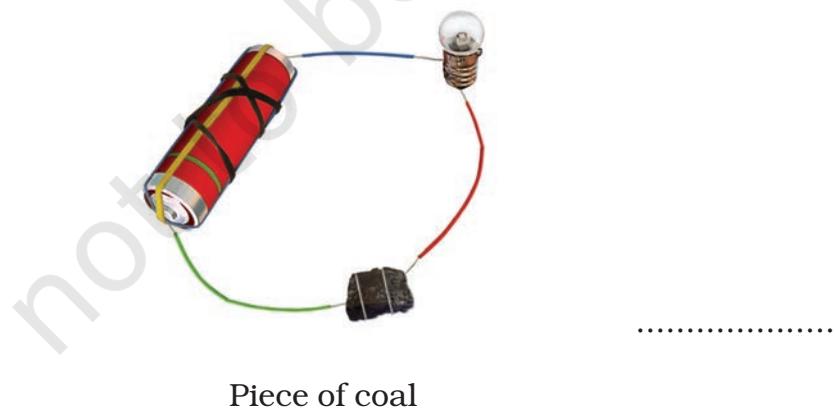


Fig. 14.5

Which of these two circuits A or B shows the correct observation?

17. Observe the following circuits carefully. In which circuit will the bulb glow. Write 'Yes' or 'No' in the blank space provided along each of the circuit given in Fig. 14.6.





Iron nail

.....



Eraser

.....



Steel spoon

.....

Fig. 14.6

LONG ANSWER QUESTIONS

18. An electric current is passed through a conducting solution. List any three possible observations.
19. In the circuit given as Fig. 14.7, Boojho observed that copper is deposited on the electrode connected to the negative terminal of

the battery. Paheli tried to repeat the same experiment. But she could find only one copper plate. Therefore she took a carbon rod as negative electrode. Will copper be still deposited on the carbon rod? Explain your answer.

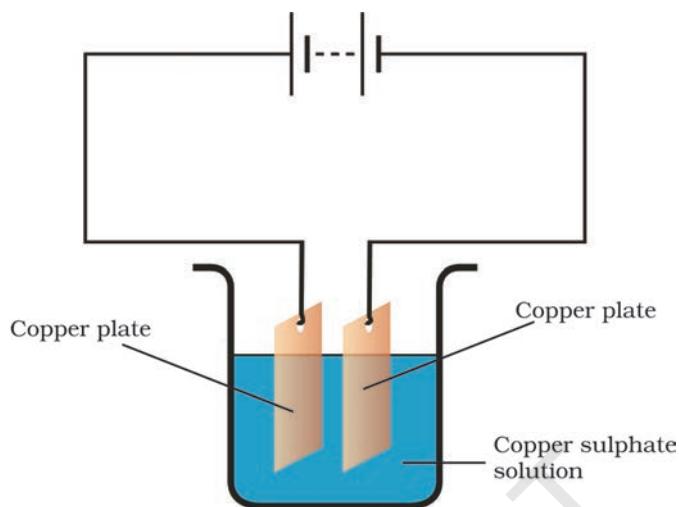


Fig. 14.7

20. Observe the circuit given in Fig. 14.8.

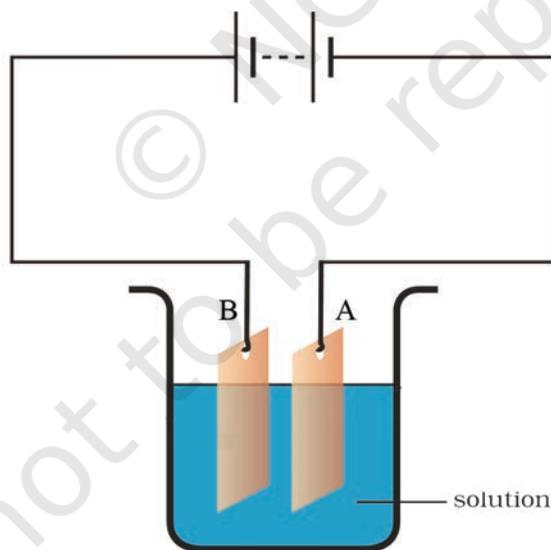


Fig. 14.8

Boojho set up this circuit for purification of copper. What will be the nature of – (i) plate A (ii) plate B (iii) the solution.

Explain the process of purification.

21. Observe the following circuit given in Fig. 14.9.

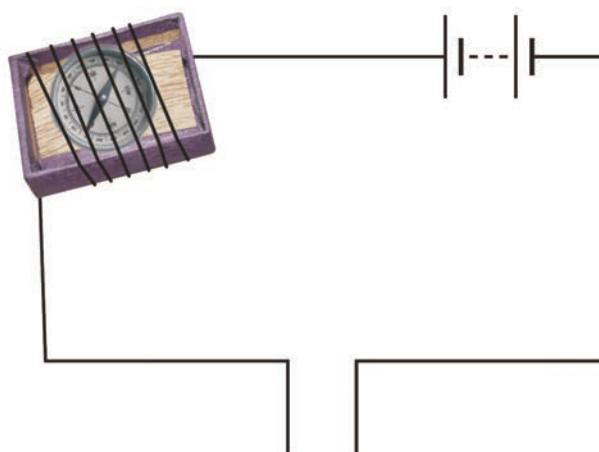


Fig. 14.9

Current does not flow in the circuit if there is a gap between the two wires. Does it indicate that air is a poor conductor of electricity? Does air never conduct electricity? Explain.

22. Boojho made the circuit shown in Fig. 14.10. He wanted to observe what happens when an electric current is passed through water. But he forgot to add a few drops of lemon juice to water. Will it make any difference to his observations? Explain.

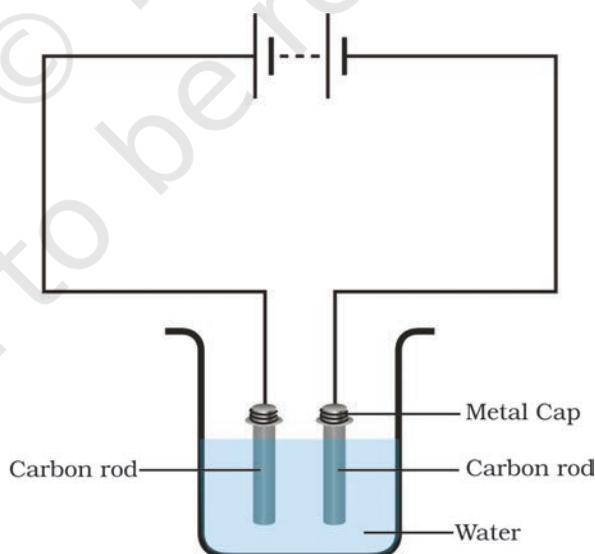


Fig. 14.10

23. Observing that the bulb does not glow in the circuit shown in Fig. 14.11 A, Boojho changed the circuit as shown in Fig 14.11 B. He observed deflection in the magnetic compass.

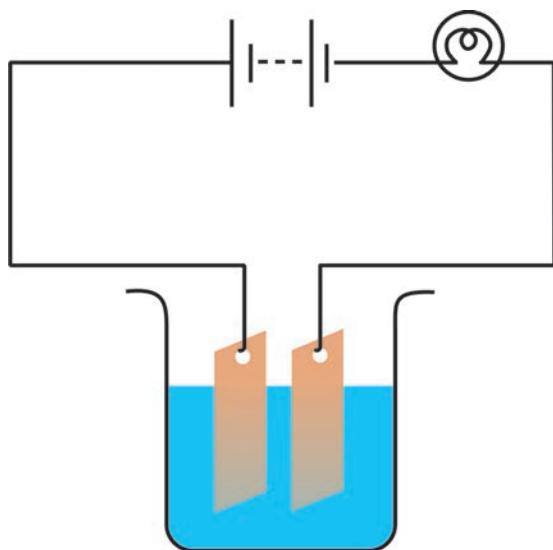


Fig. 14.11 A

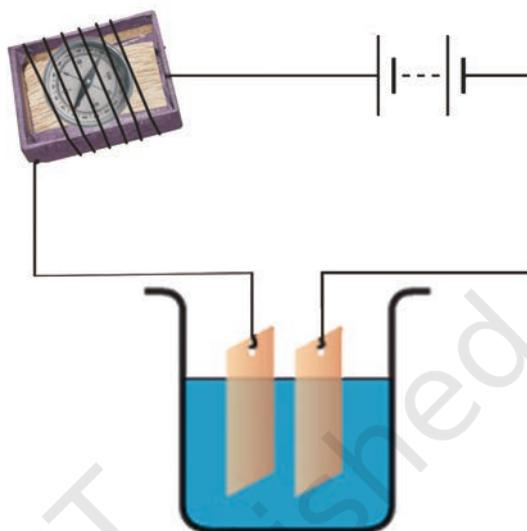


Fig. 14.11 B

- (i) What does the deflection in magnetic compass indicate?
 - (ii) Why did the bulb not glow in Fig.14.11 A?
 - (iii) What would be the effect of increase in the number of turns in the coil wound around the magnetic compass in Fig. 14.11B?
 - (iv) What will be observed if the number of cells are increased in the circuit shown in Fig. 14.11B?
24. You are provided with a magnetic compass, an empty match box, 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.

15

Some Natural Phenomena

MULTIPLE CHOICE QUESTIONS

- An electroscope is a device which is used to find if an object is
 - charged
 - magnetic
 - free of cracks
 - hot
- Electric current is to be passed from one body to another. For this purpose the two bodies must be joined by
 - cotton thread
 - plastic string
 - copper wire
 - rubber band
- The movement of the earth's plates causes
 - cyclones
 - lightning
 - earthquakes
 - thunderstorms
- Two charged objects are brought close to each other. Choose the most appropriate statement from the following options:
 - they may attract
 - they may repel
 - they may attract or repel depending on the type of charges they carry
 - there will be no effect
- Which of the following is not likely to cause Tsunami?
 - A major nuclear explosion under sea
 - Earthquake
 - Volcanic eruption
 - Lightning
- The earth's plate responsible for causing earthquakes is
 - the crust of the earth
 - the mantle of the earth
 - the inner core of the earth
 - the outer core of the earth
- Consider the list of terms given below:
 - Seismic Zone
 - Fault Zone
 - Mantle
 - Inner Core



Fig. 15.1

15. Plastic straws A and B are rubbed with dry cotton cloth. What will happen if they are brought near each other?

SHORT ANSWER QUESTIONS

16. During the construction of a building the lightning conductor was left hanging in the air by mistake. Would the lightning conductor be still effective? Explain.
17. If air and cloud were good conductors of electricity, do you think lightning could occur? Explain.
18. Identify the lightning conductor and the copper plate in Fig. 15.2.



Fig. 15.2

19. If the materials used for constructing a building were good conductors, do you think lightning will strike the building. Will the lightning conductor be still required to be installed in the building?
20. You might have observed on a dry day that when you touch the screen of a television or computer monitor (with picture tube), you get a slight shock. Why does it happen?
21. Explain how does lightning conductor protects a building from getting struck by lightning.
22. In an electroscope if a negatively charged body is brought in contact with the metal clip, the strips of the electroscope diverge. If now another charged object carrying equal amount of positive charge is brought in contact with the clip, what will happen?
23. The strips of an electroscope diverge when a charged body is brought in contact with the metal clip. Now the clip is touched gently by our hand. What will happen to the strips? Explain.

LONG ANSWER QUESTIONS

24. Explain how lightning takes place?
25. Mention three precautions that you will take to protect yourself if earthquake strikes when you are inside the house.
26. Explain why it is safer to use a wireless telephone instead of a landline telephone during lightning.
27. What precautions would you take if lightning occurs while you are outside the house?
28. If the metal clip used in the electroscope is replaced by an ebonite rod and a charged body is brought in contact with it, will there be any effect on the aluminium strips? Explain.

16

Light

MULTIPLE CHOICE QUESTIONS

- Part of the eye which controls the light entering is called
 - iris
 - cornea
 - lens
 - retina
- We can see a non-luminous object when light:
 - emitted by the object falls on the eye.
 - is reflected from the object towards our eye.
 - completely passes through the object.
 - gets completely absorbed by the object.
- Light is falling on surface S_1 , S_2 , S_3 as shown in Fig.16.1.

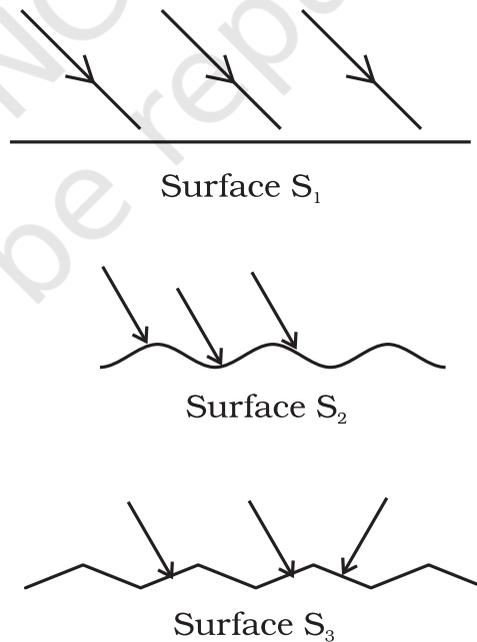


Fig.16.1

Surfaces on which the angle of incidence is equal to the angle of reflection is/are

- (a) S_1 only
(b) S_1 and S_2 only
(c) S_2 and S_3
(d) all the three surfaces
4. A tiny mirror M is fixed on a piece of cardboard placed on a table. The cardboard is illuminated by light from a bulb. The position of eye with respect to position of bulb is shown in Fig.16.2 as A, B, C and D. In which position mirror will be visible?

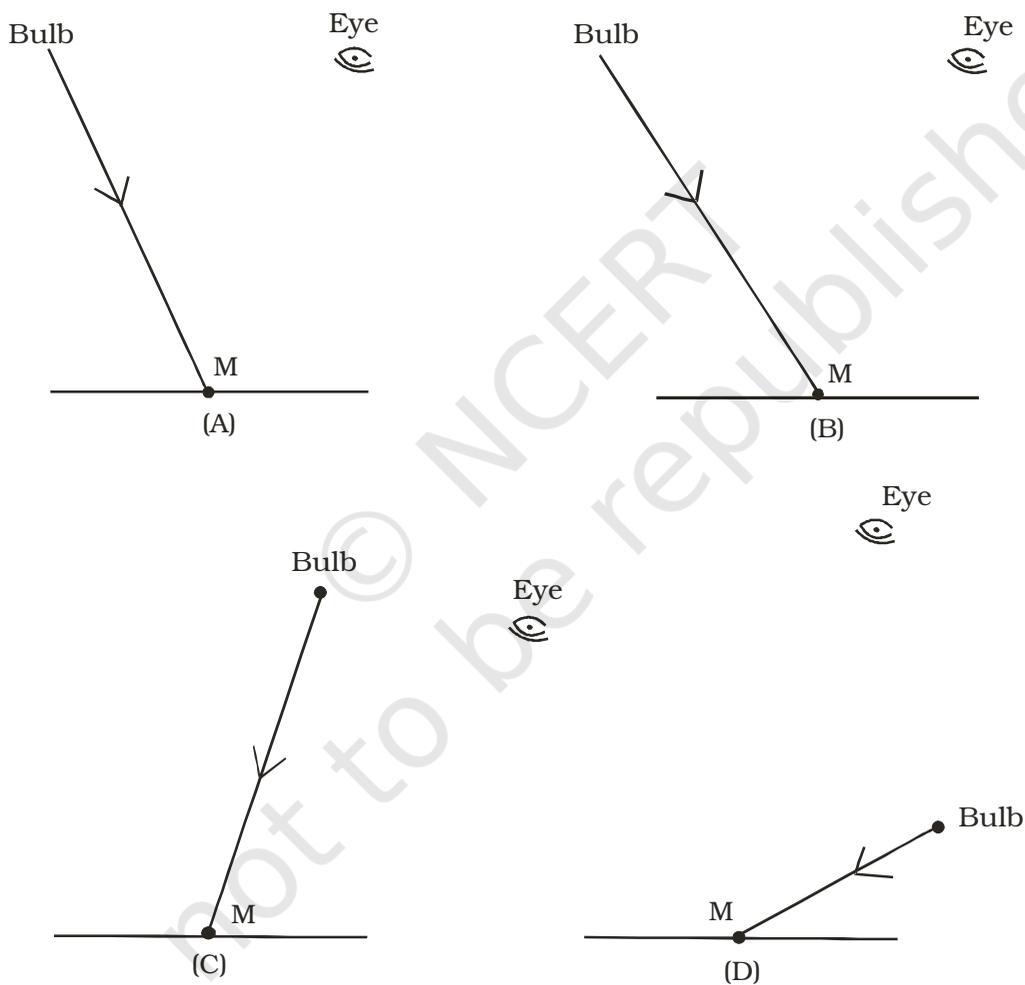


Fig. 16.2

- a. A
b. B
c. C
d. D

- A ray of light incident on mirror A at an angle of 25° falls on mirror B after reflection. The angle of reflection for the ray reflected from mirror B would be
- (a) 25° (c) 65°
(b) 50° (d) 115°
7. Which of the following statements is correct regarding rods and cones in the human eye?
- (a) Cones are sensitive to dim light.
(b) Cones are sensitive to bright light.
(c) Rods are sensitive to bright light.
(d) Rods can sense colour.
8. In the figure of the human eye (Fig. 16.5), the cornea is represented by the letter

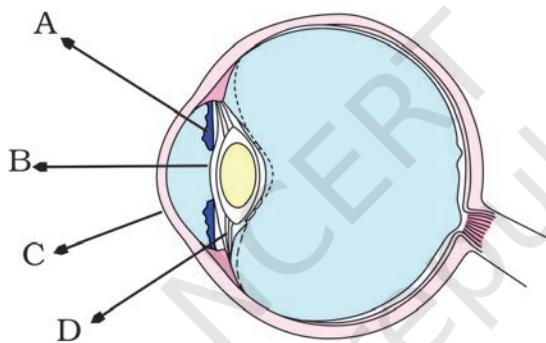


Fig. 16.5

- (a) A (c) C
(b) B (d) D

VERY SHORT ANSWER QUESTIONS

9. Name the part of the eye which gives colour to the eyes.
10. Boojho while waving his hand very fast in front of his eyes, observes that his fingers appear blurred. What could be the reason for it?
11. How many times is a ray of light reflected by two plane mirrors placed parallel and facing each other?

12. The angle between incident ray and reflected ray is 60° . What is the value of angle of incidence?
13. The distance between the object and its image formed by a plane mirror appears to be 24 cm. What is the distance between the mirror and the object?

SHORT ANSWER QUESTIONS

14. What happens to light when it gets dispersed? Give an example.
15. Draw Fig.16.6 showing the position of the plane mirror. Also label the angle of incidence and angle of reflection on it.

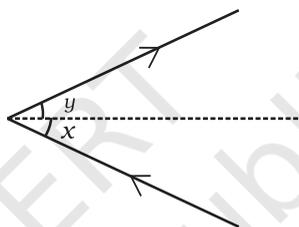


Fig.16.6

16. Look at Fig.16.7. Can the image of the child in it be obtained on a screen?

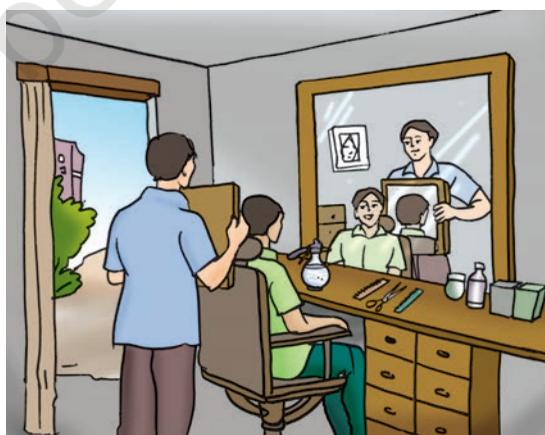


Fig.16.7

17. Eyes of the nocturnal birds have large cornea and a large pupil. How does this structure help them?
18. What kind of lens is there in our eyes? Where does it form the image of an object?
19. Which part of the eye gets affected if someone is suffering from cataract? How is it treated?

LONG ANSWER QUESTIONS

20. Boojho planned an activity to observe an object A through pipes as shown in Fig. 16.8, so that he could see objects which he could not directly see.

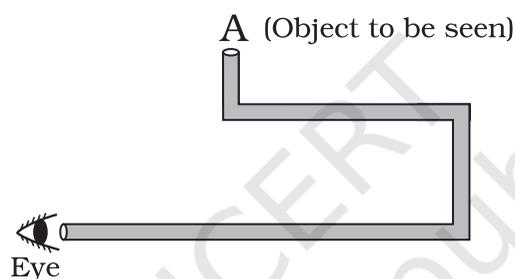


Fig. 16.8

- (a) How many mirrors should he use to see the objects?
 - (b) Indicate the positions of the mirrors in the figure.
 - (c) What must be the angle with respect to the incident light at which he should place the mirrors?
 - (d) Indicate the direction of rays in the figure.
 - (e) If any of the mirrors is removed, will he be able to see the objects?
21. There is a mistake in each of the following ray diagrams given as Fig. 16.9 a, b, and c. Make the necessary correction (s).

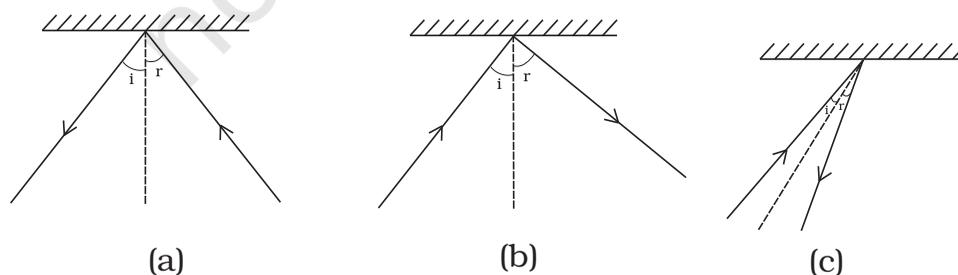


Fig. 16.9

22. Explain the process which enables us to perceive motion in a cartoon film.
23. How is the phenomenon of reflection used in making a kaleidoscope? What are the applications of a kaleidoscope?
24. Fig. 16.10 shows the word REST written in two ways in front of a mirror. Show how the word would appear in the mirror.

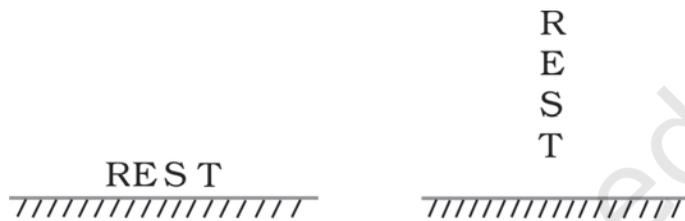


Fig. 16.10

25. Write down the names of parts of the eye in the blank spaces shown in Fig. 16.10.

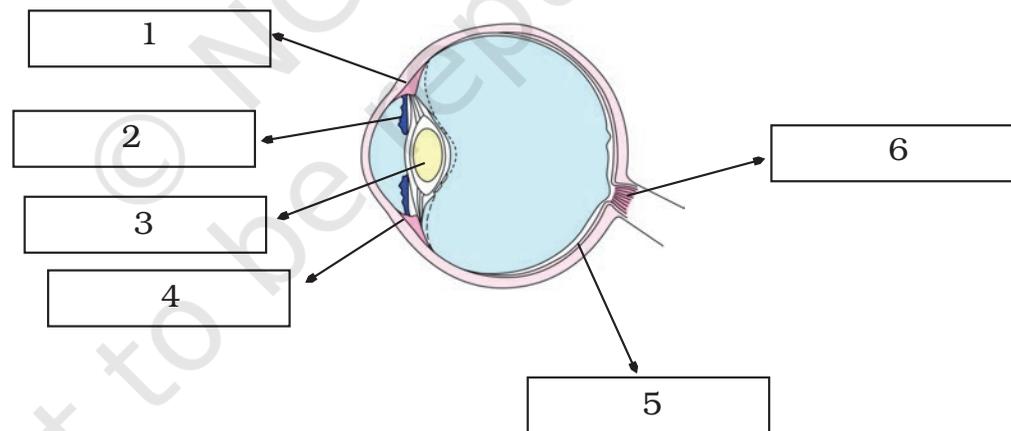


Fig. 16.11

17

Stars and Solar System

MULTIPLE CHOICE QUESTIONS

- Morning star is the name given to
 - pole star
 - star Sirius
 - planet Jupiter
 - planet Venus
- Which of the following figures depicts the position of pole star correctly?

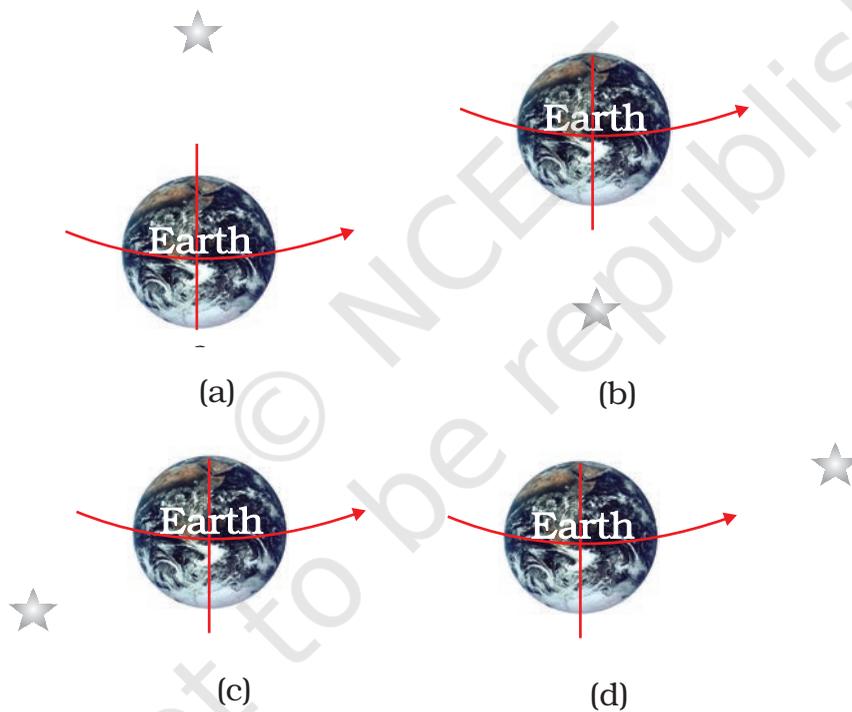


Fig. 17.1

- Sun appears to move from east to west around the earth. This means that earth rotates from
 - east to west
 - west to east
 - north to south
 - west to north

4. An astronaut standing on the surface of the moon throws a ball upwards. The ball would
 - (a) directly fall down from the point it is released.
 - (b) hang in space.
 - (c) go up and then come back to the surface of the moon.
 - (d) keep going up never to come back.
5. Suppose a new planet is discovered between Uranus and Neptune. Its time period would be
 - (a) less than that of Neptune.
 - (b) more than that of Neptune.
 - (c) equal to that of Neptune or Uranus.
 - (d) less than that of Uranus.
6. The change in seasons on the earth occurs because
 - (a) the distance between the earth and the sun is not constant.
 - (b) the axis of rotation of the earth is parallel to the plane of its orbit.
 - (c) the axis of rotation of the earth is perpendicular to the plane of its orbit.
 - (d) the axis of rotation of the earth is tilted with respect to the plane of its orbit.
7. The first of a month is the new moon day. On fifteenth of the same month, which of the following figures would represent the phase of the moon?



(a)



(b)



(c)



(d)

Fig. 17.2

VERY SHORT ANSWER QUESTIONS

8. Do stars emit light only during night?
9. Paheli and Boojho observe a bright object in the night sky which was not twinkling. Paheli says, it is a star and Boojho says it is a planet. Who is correct?
10. State whether the following statements are 'True' or 'False'.
 - (a) The planet nearest to us is Jupiter.
 - (b) All the stars are at the same distance from us.
 - (c) The planets do not emit light of their own.
 - (d) The planets keep changing their position with respect to stars.
 - (e) The planet Venus appears in the eastern sky before sunrise.
 - (f) The plane in which the earth revolves around the sun is called equatorial plane of earth.
11. John saw full moon on a particular day. After how many days will he be able to see the full moon again?
12. In the picture of rotating earth given as Fig. 17.3 mark the position of pole star.

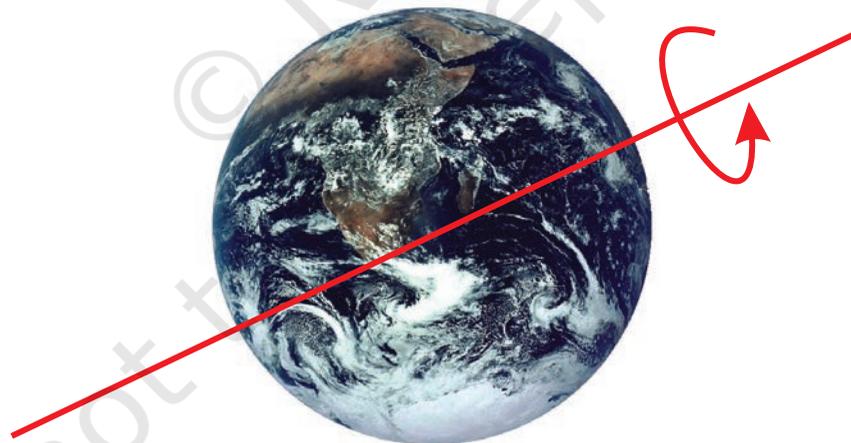


Fig. 17.3

13. In the given Fig. 17.4 out of the positions A,B,C and D which will indicate the position of the sun? Draw the sun at the appropriate position.

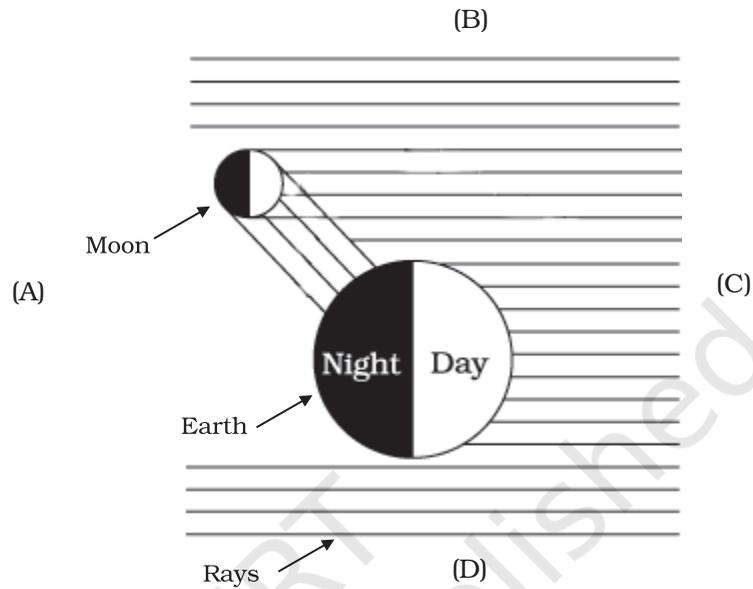


Fig. 17.4

14. In Fig. 17.5 mark the arrows (\leftarrow), (\rightarrow), (\downarrow), or (\uparrow) to show the direction of sunlight.

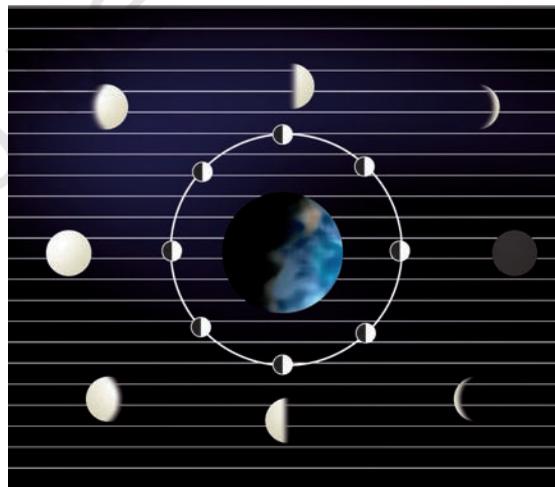


Fig. 17.5

SHORT ANSWER QUESTIONS

15. A star is ten light years away from the earth. Suppose it brightens up suddenly today. After how much time shall we see this change?
16. Meteors are not visible during the daytime. Explain the reason.
17. Why does the moon change its shape daily?
18. Paheli saw the moon through a glass window at 8:00 p.m. She marked the position of the moon on the glass pane. She got up at 4 a.m. in the morning. Will the moon be visible at the same position?

LONG ANSWER QUESTIONS

19. Suppose the moon emits light of its own. Would it still have phases? Justify your answer.
20. Fig. 17.6 shows comets without their tail. Show the tails of the comets at position A, B, and C. In which position will the tail be longest?

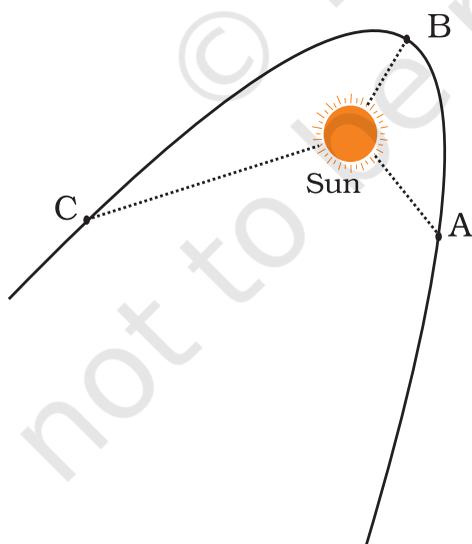


Fig. 17.6

21. Explain why we always see the same side of moon.

22.

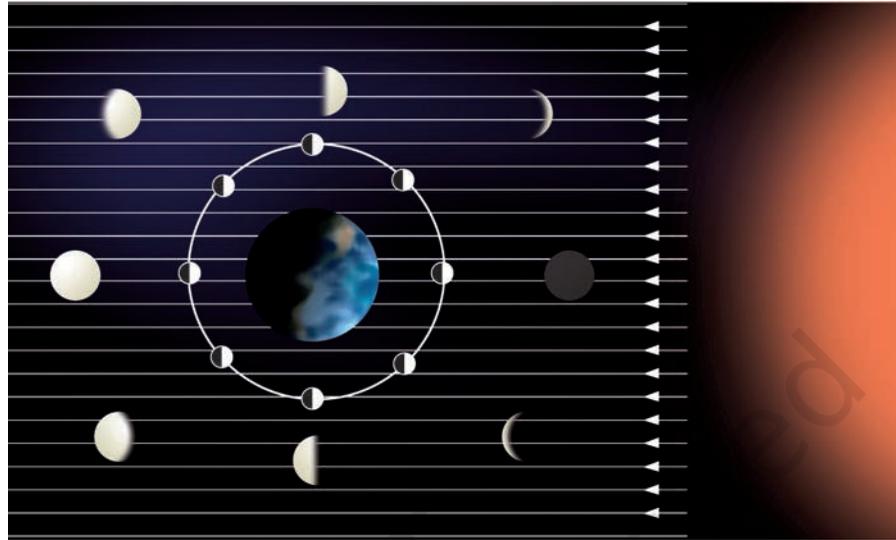


Fig. 17.7

Look at Fig. 17.7 carefully and answer the following question:

- In which part of the sky would you see the full moon in the evening?
- In which part of the sky would you see the crescent moon in the evening?

23. Write the names of all planets in Fig. 17.8.

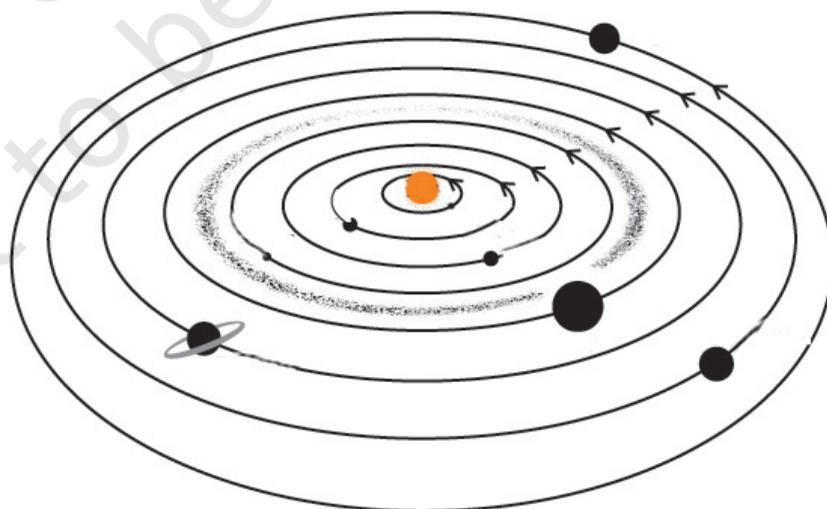


Fig. 17.8

24. Suppose the distance between earth and sun becomes half of its present distance. What is likely to happen to life?
25. Explain with a diagram how you can locate pole star with the help of the constellation Great Bear (Ursa Major).

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18

Pollution of Air and Water

MULTIPLE CHOICE QUESTIONS

- Air is a mixture of various gases. One of the gases is 21% part of the air and is essential for the survival of human beings. This gas is
 - nitrogen
 - oxygen
 - ozone
 - argon
- Which of the following is not a source of air pollution?
 - automobile exhaust
 - burning of firewood
 - windmill
 - power plant
- Boojho wishes to contribute in reducing air pollution. Which vehicle should he use for going to school?
 - car
 - school bus
 - autorickshaw
 - scooter
- Which of the following is not a way to conserve water?
 - replace
 - reduce
 - reuse
 - recycle
- The type of pollution which is likely to affect Taj Mahal in Agra to a greater extent is
 - air pollution
 - water pollution
 - soil pollution
 - noise pollution
- Incomplete combustion of fuel such as petrol and diesel gives
 - nitrogen oxide
 - sulphur dioxide
 - carbon monoxide
 - carbon dioxide
- The phenomenon of marble cancer is due to
 - soot particles
 - CFCs
 - fog
 - acid rain
- Potable water is the water which is
 - obtained from a river.
 - obtained from a lake.
 - pure and fit for drinking.
 - used only for washing clothes.

9. Which of the following procedures will give you water free from all impurities?
- (a) adding chlorine tablets (c) boiling
(b) distillation (d) filtration
10. A pond contains clean water. Which of the following activities will produce least pollution of water?
- (a) washing clothes in the pond
(b) animals bathing in the pond
(c) washing motor vehicles in the pond
(d) swimming in the pond.
11. Trees help in reducing the pollution of our environment. Lakhs of trees are planted by people in the month of July every year. The occasion is called
- (a) forest Conservation Day (c) Van Mahotsav
(b) plantation month (d) wildlife week
12. Which of the following is not a green house gas?
- (a) nitrogen gas (c) methane gas
(b) water vapour (d) carbon dioxide

VERY SHORT ANSWER QUESTIONS

13. Name the chemicals which are used in refrigerators and air conditioners and damage ozone layer when released in air.
14. Name any two sources which cause air pollution due to suspended particulate matter.
15. Name two gases which are mainly responsible for acid rain?
16. The quality of air at various locations is monitored regularly by government and other agencies? In what way can you use these data?
17. Combustion of fossil fuels generates a lot of air pollution. Can you suggest any two alternative sources of energy which do not cause any pollution?
18. Name any two water pollutants which are toxic for plants and animals.

SHORT ANSWER QUESTIONS

19. A lot of dry leaves are collected in a school garden and are burnt every day. Do you think that it is right to do so? If not, what should be done to dispose off the dry leaves?
20. The level of air pollution is higher at a busy traffic intersection. Why?
21. Fill in the blanks with the help of words given in bracket after each sentence.
- (a) When air is contaminated by _____ substances which have a _____ effect on both the _____ and _____, it is referred to as _____.
(air pollution, harmful, living, unwanted, non-living, pollutants).
- (b) Many _____ are responsible for causing _____ pollution. Petroleum _____ are a major source of _____ pollutants like _____ and _____.
(sulphur dioxide, refineries, industries, nitrogen dioxide, gaseous, liquid, people, air).
- (c) While _____ your teeth, leaving the _____ running may waste several _____ of water.
(tap, litres, brushing, washing, drops)
- (d) Water which is suitable for _____ is called _____ water.
(washing, bathing, drinking, potable, soft).
- (e) Water which looks clean still has disease carrying _____ and _____ impurities.
(insects, microorganism, particles, dissolved, harmful).
22. Match the items of **Column A** with those of **Column B**.

Column A	Column B
(a) sulphur dioxide	(i) damage ozone layer
(b) carbon dioxide	(ii) reduces oxygen-carrying capacity of blood
(c) carbon monoxide	(iii) acid rain.
(d) chlorofluorocarbons	(iv) green house gas

23. Find out the wrong statements and write them in their correct form.
- (a) We can survive for some time without air but we cannot survive even for a few minutes without food.
 - (b) A brick kiln emits lot of smoke and other harmful gases causing air pollution.
 - (c) Carbon monoxide is produced by complete burning of fuels such as coal, petrol, diesel.
 - (d) Chlorination is a commonly used chemical method for killing germs in water.
 - (e) Water which is suitable for drinking is called soft water.
24. In the following statements, the underlined words are jumbled up. Write them in their correct form.
- (a) Air contains 78% ginroten and 21% gonexy.
 - (b) Vehicles produce high level of pollutants like carbon dioxide, nitrogen oxides, nobrac moondexi and mosek.
 - (c) Carbon dioxide, thaneme, nitrous oxide and water vapour are known as heengrouse sesga.
 - (d) Gangotri glacier in Himalaya has started melting because of lablog ringwam.
 - (e) Whenever harmful substances such as wagese, toxic chemicals, silt, etc. get mixed with water, the water becomes potdulle.

LONG ANSWER QUESTIONS

25. What do CFCs stand for? Name some devices where CFCs are used. Why CFCs are considered as pollutants?
26. Why is it advised that industries should switch over to cleaner fuels such as CNG and LPG in the Taj Mahal Zone in Agra?
27. It is said, "CO₂ contributes to global warming." Explain.
28. We should plant trees and nurture the ones already present in the neighbourhood. Why?
29. Explain the traditional way of purifying water to make it fit for drinking.

30. How can we reduce, reuse and recycle water?
31. Read the paragraph and answer the questions following it.

Water is essential for life. Without water there would be no life. We usually take water as granted for its purity, but we must ensure the quality of water. Pollution of water originates from human activities. Through different paths, pollution reaches to ground water. Easily identified source or place of pollution is called as point source, e.g.– municipal and industrial discharge pipes, where pollutants enter the water source. Non–point sources of pollution are those where a source of pollution can not be easily identified, e.g.– agricultural run off, acid rain etc.

- (i) How do you classify the various sources of water pollution?
 (ii) What are the point sources of water pollution?
 (iii) Name any two non–point sources of water pollution?

32. Complete the crossword puzzle with the help of clues given below:

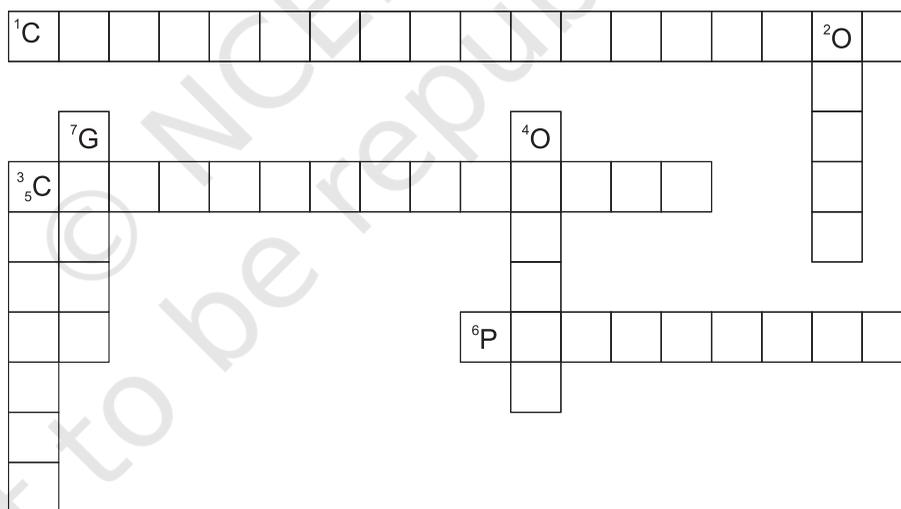


Fig. 18.1

Across

1. Pollutant which was used in refrigerators and air conditioners. (18)
3. Produced on incomplete combustion of fuels. (14)
6. This chemical protects our crops and is washed into water bodies from the field. (9)

Down

2. This layer protects us from harmful ultraviolet rays. (5)
4. It is essential for combustion. (6)
5. Disease which is caused by drinking contaminated water. (7)
7. River which is famous in India and sustains most of the northern, central and eastern Indian population. (5)

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Answers

Chapter 1

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|-------|------|
| 1. c | 2. b | 3. b | 4. c |
| 5. a | 6. a | 7. d | 8. a |
| 9. c | 10. b | 11. b | |

VERY SHORT ANSWER QUESTIONS

12. Seed drill, because it is a modern agricultural implement unlike the others which are all traditional tools.
13. The field will be watered, tilled and ploughed before sowing seeds.
14. (i) False: Apart from good quality seeds, using appropriate agricultural practices are important for getting higher yield.
- (ii) False: It actually enriches the soil.
- (iii) False: Some crop plants need transplantation.
- (iv) False: Rhizobium (bacteria) present in the cells of root nodules of leguminous, plants fix nitrogen.
- (v) True.
15. October to March.
16. Loosening the soil/maintaining high moisture levels in soil.

SHORT ANSWER QUESTIONS

17. *Kharif*: Rice or Soyabean, *Rabi*: Pea or Wheat.
Pea/Soyabean are legumes that will fix nitrogen with the help of Rhizobium.

18. (i)-c; (ii)-a; (iii)-b; (iv)-d

19. Crops cultivated without using any chemicals like fertilisers, pesticides, weedicides etc. are called organic foods.

20.

B	S	E	I	L	O	R	U	A	Z	Z
O	E	A	R	T	H	W	O	R	M	K
E	E	Z	L	G	O	H	Y	H	I	U
X	D	N	U	R	E	A	S	I	C	S
D	M	O	X	P	T	K	Y	Z	R	B
C	L	R	B	U	L	L	F	O	O	X
P	W	K	V	R	A	O	E	B	B	C
I	Q	P	G	B	G	C	W	I	E	M
M	A	N	U	R	E	V	J	U	S	P
Q	X	F	U	S	A	Z	T	M	U	V

Living : Seed, Earthworm, *Rhizobium*, Microbes, Ox

Non living: Plough, Urea, NPK, Manure, Hoe

21. (a) Seed drill.

(b) The advantages are,

- (i) seeds are sown at a uniform distance and depth to avoid over crowding.
- (ii) after sowing, seeds are covered by soil which prevent them from being eaten by birds.
- (iii) It saves time and labour.

22. (a) Animal husbandry.

(b) Animals are provided with proper food, shelter and care.

23. *Khariff* : Maize , Paddy, Groundnut, Cotton.

Rabi : Mustard, Pea, Wheat, Gram.

LONG ANSWER QUESTIONS

24. (i) He did not use good quality seeds.
(ii) His field was not well irrigated.
(iii) Manures/fertilisers were not properly applied.
(iv) Weeds were not removed. More can be added to the list.
25. The following items are required – seeds and seedlings of vegetable plants from nursery, kitchen waste, water.

Steps for raising the garden:

1. Kitchen waste will be collected and composted in a pit.
 2. A patch of land will be identified for the garden.
 3. Soil will be dug up and levelled with the help of a spade.
 4. Sowing of seeds / transplanting of seedlings.
 5. Select seeds/seedlings as per the season. Water the plants regularly with a water-can.
 6. Compost will be applied.
 7. Weeds will be removed periodically with the help of *Khurpi*.
26. (a) Rainy season
(b) Seeds are first grown in a nursery and later seedlings are transplanted in the field.
(c) Grains are sun dried to reduce the moisture content and later stored in jute bags or grain silos.
27. (i) SILOS (ii) THRESHING (iii) IRRIGATION (iv) RIVER
Activity carried out in fields after maturation of crop-Harvesting
28. (i) Use of fertilisers and weedicides are hazardous to environment. Tractor causes air pollution.
(ii) Modern agricultural implements saves on both time and labour as compared to traditional equipments.
(iii) An example of a weedicide is 2, 4-D. Farmers should cover their mouth and nose while spraying weedicides as they can cause health hazards.
29. Students may come up with practical solutions during the course of discussion.
30. Tilling and ploughing, sowing, manuring, irrigation, de-weeding, harvesting.

19. The probable reason is that the *chaat* was contaminated by pathogenic microbes due to unhygienic conditions near the shop or the utensil used for serving could have contaminated.
20. The 'unused kneaded flour', if left in warm conditions, gets infected by microbes which cause fermentation and spoils the flour. The *pooris* would remain in relatively good condition because they were deep fried in heated oil that kills microbes.
21. (a) Polio/Chicken Pox/Influenza
(b) Virus can reproduce only inside the cells of host.

LONG ANSWER QUESTIONS

22. (a) Yellow vein mosaic of lady's finger/okra
(b) Virus
(c) The disease spreads from one plant to another through insects.
(d) (i) Citrus canker caused by bacteria (ii) Rust of wheat caused by fungus or any other disease
23. Vaccines contain dead or weakened microbes of a particular disease. When a vaccine is introduced into a healthy body, the body fights and kills them by producing suitable antibodies. These antibodies remain in the body and protects it when the microbe enters the body again.
24. (a) Yeast causes fermentation converting sugar into alcohol and carbon dioxide.
(b) Carbon dioxide
(c) Lime water turns milky
25. (a) Bread mould. It is a fungus.
(b) Moist and stale bread.
(c) It grows well in moist conditions.
(d) No, the fungus spoils the bread by producing poisonous substances.
26. (a) Fresh milk is boiled before consumption to kill the microorganisms in it. But packed milk is pasteurised and does not contain any microorganisms. It can thus be consumed without boiling.
(b) Raw vegetables and fruits get easily infected by microorganisms and get spoilt. They are kept in refrigerator

as low temperature inhibits growth of microbes. Jams and pickles contain sugar and salt as preservatives. They do not get infected by microbes easily.

- (c) Beans and peas are leguminous plants and have *Rhizobium* in their root nodules. These bacteria can fix atmospheric nitrogen to enrich the soil with nitrogen and increase its fertility.
 - (d) Though mosquitoes live on land, their larvae grow in water. If water stagnation is prevented the larvae cannot survive.
27. (a) Cholera: By maintaining personal hygiene and good sanitation practices.
- (b) Typhoid: Eating properly cooked food, drinking boiled food, getting vaccinated against the disease.
- (c) Hepatitis A: Drinking boiled water and getting vaccinated against the disease.
28. (a) Lightning fixes nitrogen.
- (b) Nitrogen fixing bacteria and blue green algae fix atmospheric nitrogen.
- (c) Nitrogenous waste from excretion and death.
- (d) Bacteria turn compounds of nitrogen into gaseous nitrogen.

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Chapter 3

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|------|------|
| 1. b | 2. c | 3. d | 4. a |
| 5. b | 6. d | 7. d | 8. b |
| 9. c | 10. d | | |

VERY SHORT ANSWER QUESTIONS

- Cellulose.
- Rayon.
- Terylene and cotton.
- Plastic is easily moldable so the articles can be made in any shape and size.
- Due to its non-biodegradable nature it causes environmental pollution.
- Burning of plastic and synthetic fabrics produces lots of poisonous gases causing air pollution.
- (a), (b), (c) and (f)
- Plastic is a non-reactive material. It does not react with air and water and thus does not rust.

SHORT ANSWER QUESTIONS

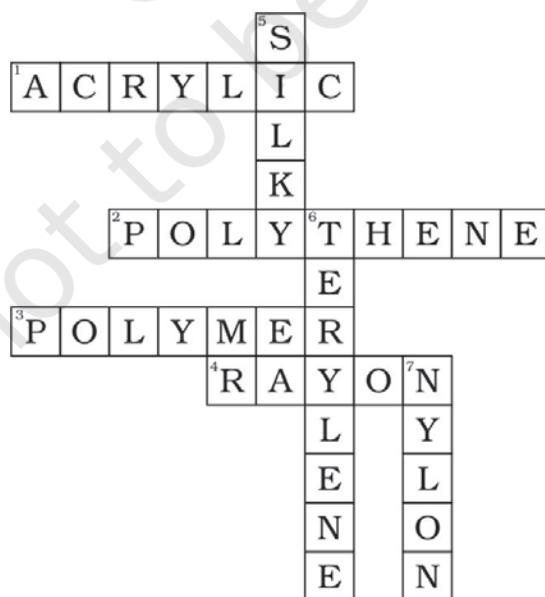
- Nylon ropes are strong, elastic and lighter as compared to cotton and jute ropes.
- Acrylic blankets are cheap, light in weight, more durable and are available in variety of colours and designs. They can be easily washed at home.
- Thermoplastics get deformed easily on heating and can be bent easily on heating. On the other hand thermosetting plastics when molded once can not be softened on heating.
- | | |
|---------------|--------------|
| (i) monomers | (iv) acrylic |
| (ii) man-made | (v) melamine |
| (iii) nylon | |

23. (a)-(iii), (b)-(iv), (c)-(v), (d)-(ii), (e)-(i)
24. (a) rayon (d) plastic
 (b) polymer (e) polyester
 (c) terylene (f) teflon

LONG ANSWER QUESTIONS

25. (i) True
 (ii) False, synthetic fibres melt on heating
 (iii) True
 (iv) False, most of the plastics are non biodegradable.
26. **Hint:** Write uses of synthetic polymers like nylon, acrylic, terylene, PET, plastics, etc.
27. **Hint:** Plastic is a non-biodegradable material and as such it causes land pollution. At the same time burning such materials in the form of garbage causes serious air pollution.
 Reducing it's use, reusing it for some other purpose and recycling may limit its overall consumption and reduce environmental pollution.
28. **Hint:** By hanging weight with the threads of same thickness of any synthetic fibre and cotton separately will show that more weight is required to break a synthetic thread. (Also see activity 3.1 of NCERT science book of class VIII).

29.



Chapter 4

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|-------|-------|
| 1. b | 2. d | 3. d | 4. c |
| 5. b | 6. a | 7. d | 8. b |
| 9. c | 10. a | 11. a | 12. b |

VERY SHORT ANSWER QUESTIONS

13. (i) sodium (ii) potassium
14. oxygen gas
15. (i) nitrogen (ii) phosphorus
16. chlorine
17. iodine
18. No, because displacement reaction does not takes place.
19. Metals are sonorous.
20. Mercury
21. Zinc

SHORT ANSWER QUESTIONS

22. The green material is a mixture of copper hydroxide and copper carbonate formed due to reaction of copper with moist air (water, oxygen and carbon dioxide).
23. (a) iron (b) conductor
24. The bulb will not glow as wood is not a good conductor of electricity.
25. In beaker A, a reddish brown layer of copper will deposit on the iron nail and the blue coloured solution will become yellowish green. On the other hand, no change is observed in beaker B.

26. The tablet is not made of iron metal, instead it contains a salt of iron.
27. (a)-(iii), (b)-(iv), (c)-(i), (d)-(v), (e)-(ii).

LONG ANSWER QUESTIONS

28. Statements (b), (d) and (e) are not correct.
- (b) Metals are good conductor of electricity and also good conductor of heat.
- (d) Oxides of non-metals are acidic in nature and oxides of metals are basic in nature.
- (e) A more reactive metal replaces a less reactive metal from its salt solution in water.
29. **Hint:** Write the activity based on the fact that when an iron nail is put in a beaker containing copper sulphate solution, iron replaces copper from the solution, since it is more reactive. Copper metal and iron sulphate are the products which are obtained as a result of the chemical reaction.
30. Oxygen, water, blue, red, non-metals.
Questions maybe
- (i) Which gas is formed when sulphur reacts with oxygen?
- (ii) What is the nature of oxides of non-metals?

31.

A	X	T	M	S	P	K	L	G
X	T	S	U	L	P	H	U	R
I	L	R	H	M	N	D	I	L
C	I	R	O	N	S	E	J	K
A	L	U	M	I	N	I	U	M
R	M	U	Q	T	R	S	T	U
B	N	P	C	O	P	P	E	R
O	X	Y	G	E	N	V	W	X
N	Y	Z	T	A	B	G	H	K

Chapter 5

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|-------|-------|
| 1. d | 2. c | 3. d | 4. d |
| 5. c | 6. d | 7. a | 8. a |
| 9. c | 10. d | 11. c | 12. c |

VERY SHORT ANSWER QUESTIONS

13. Decantation
14. CNG stands for Compressed Natural Gas. It is considered to be a better fuel because it is less polluting.
15. Kerosene is used as fuel for stoves, lamps and jet aircrafts.
16. (a) fuels (d) coal, natural gas
(b) carbon dioxide (e) exhaustible
(c) liquid, unpleasant
17. (a) coal (b) petroleum (c) refinery
(d) kerosene (e) sunlight
18. (a) carbonisation, (b) fossil fuels, (c) unpleasant, (d) coal gas, (e) refining, (f) air pollution.
19. (a) False, (b) False, (c) True, (d) True, (e) True.

SHORT ANSWER QUESTIONS

20. These resources are present in unlimited quantity in nature and are not likely to be exhausted by human activities.
21. Exhaustible natural resources are
coal, natural gas, petroleum, minerals, forests.
Inexhaustible natural resources are
air, sunlight, oxygen.

22. It is used for extraction of many metals and also for the manufacture of steel.
23. Coal is black in colour and hard as stone. It is one of the fuels used to cook food. Earlier it was used in railway engines to produce steam to run the engine. It is used as fuel in thermal power plants to produce electricity and in various other industries.
24. **Hint:** Oil is lighter than water hence floats over it.
25. forests, floods, soil, soil, temperature, pressure, temperature.
26. (a)–(iii), (b)–(iv), (c)–(i), (d)–(ii)

LONG ANSWER QUESTIONS

27. Coal when processed in industry gives coke, coal tar and coal gas.
- Coke is used in the manufacture of steel and in extraction of many metals.
- Coal tar is used as starting material for manufacturing various substances such as synthetic dyes, drugs, explosives, perfumes, paints etc.
- Coal gas is used as fuel.
28. It takes a very long time for the formation of fossil fuels. It also requires specific conditions and it doesn't happen quite often. Therefore, their limited stock will last only for a few hundred years.
29. **Hint:** It is related to global warming due to formation of carbon dioxide and some other gases.
- 30.
- Ensure correct tyre pressure.
 - Ensure regular maintenance of the vehicle.
 - Drive at a constant and moderate speed.
 - Switch off the engine at traffic lights or at a place where you have to wait.

31. This is an open ended question. Let children imagine and write.

32. **Hint:**

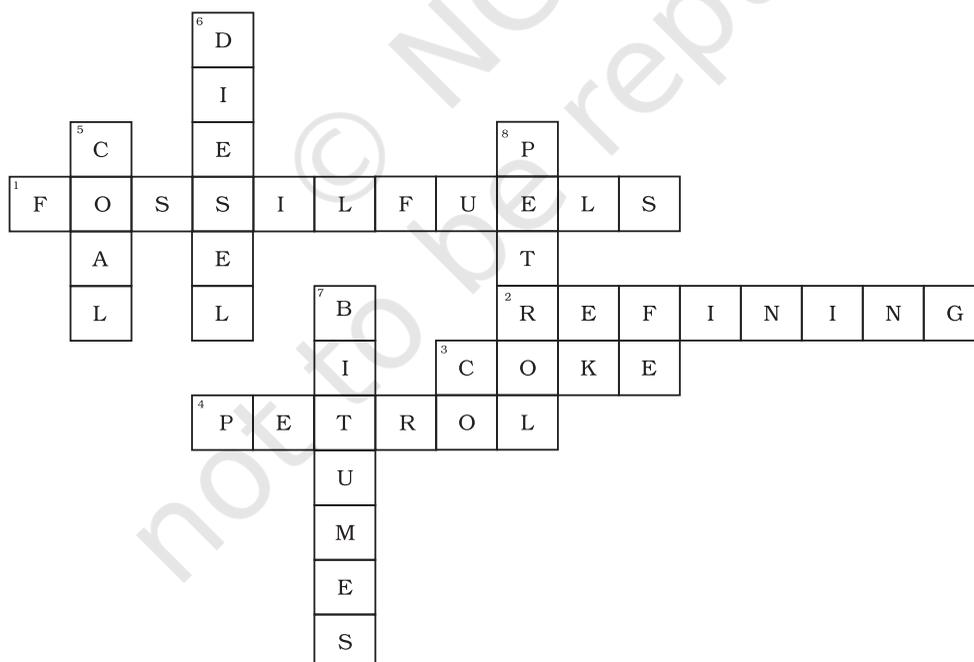
Sunlight is present in unlimited quantity in nature whereas it takes millions of years to form petrol from dead remains of organisms.

33. • Petroleum gas in liquid form (LPG) — used as fuel for home and industry.
 • Petrol — used as fuel for automobile and aviation.
 • Kerosene — used as fuel for stoves, lamps and for jet aircrafts.
 • Diesel — used as fuel for heavy motor vehicles, electric generators.
 • Lubricating oil — used for lubrication
 • Paraffin wax — used in ointments, candles, vaseline etc.
 • Bitumen — used in paints and road surfacing.

34. Open ended question. Let children write their views.

35. Open ended questions. Let children write their ideas.

36.



Chapter 6

MULTIPLE CHOICE QUESTIONS

- | | | | |
|-------|-------|-------|-------|
| 1. d | 2. c | 3. c | 4. b |
| 5. d | 6. a | 7. c | 8. c |
| 9. c | 10. c | 11. d | 12. b |
| 13. d | 14. c | 15. c | |

VERY SHORT ANSWER QUESTIONS

16. (a) Chemical, oxygen; (b) fire, blanket (c) lowest, ignition; (d) low, inflammable (e) burning.
17. (a) diesel; (b) glass; (c) matchstick; (d) heat, flame; (e) calorific
18. In jar B, because oxygen is a supporter of combustion.
19. Anu should keep her test tube in the outermost zone which is the hottest part of the flame.
20. It is because CNG produces harmful products in very small amount and is a cleaner fuel.

SHORT ANSWER QUESTIONS

21. (a) Combustible — charcoal, straw, card board, paper, candle wood,
(b) Non-combustible — chalk, stone, iron rod, copper coin, glass.
22. (a), (c) are true statements.
(b) Magnesium is a combustible metal
(d) Calorific value of coal is higher than that of wood.
23. (a)–(iv), (b)–(vi), (c)–(v), (d)–(iii), (e)–(i), (f)–(ii)
24. (a)–(iii)–(x), (b)–(ii)–(z), (c)–(i)–(y)

25. Iron wire will become red hot and glow. It will not produce a flame.
26. (a) combustion, (b) combustible, (c) ignition, (d) petrol, (e) ignition, inflammable, (f) calorific value.
27. Due to insufficient availability of oxygen in the closed room carbon monoxide gas is produced which can kill persons sleeping in that room.
28. (a) False – A chemical process in which a substance reacts with oxygen to give off heat is called combustion.
(b) False – Carbon dioxide is the best extinguisher for fires involving electrical equipment.
(c) True.
(d) False – Increased concentration of carbon dioxide in air is believed to cause global warming.
(e) True.
(f) False – outer zone is the hottest zone of a flame.
(g) True.
29. **Hint:** Sudden formation of large amount of gas due to chemical reactions.
30. **Hint:** calorific value.

LONG ANSWER QUESTIONS

31. **Hint:** Petrol will catch fire instantly because it is highly inflammable.
32. **Hint:**
- Water is not suitable for fires involving oil.
 - Manu should have switched off the flame of the burner and put a lid on the frying pan. By doing this the contact between fuel and oxygen is cut off and the flame will go off.
33. **Hint:** Three essential requirements.
- a. Fuel
 - b. Air
 - c. Heat to acquire the ignition temperature

The job of fire extinguisher is to cut off the supply of air or to bring down the temperature of fuel or both.

Chapter 7

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|-------|------|
| 1. a | 2. d | 3. c | 4. c |
| 5. a | 6. a | 7. c | 8. a |
| 9. c | 10. b | 11. a | |

VERY SHORT ANSWER QUESTIONS

12. To maintain balance in nature/to conserve the natural ecosystem.
13. Saving paper using recycled paper/donating old books/spreading awareness about harmful effects of deforestation/any other relevant answer.
14. (i) True (ii) False (Plants of a particular area are collectively termed as fauna). (iii) False (Deforestation leads to an increase in the water holding capacity of the soil). (iv) True.
15. Reforestation can take place naturally by leaving the deforested area undisturbed for a long time. But this process takes a long time in terms of years.
16. Satpura National Park.

SHORT ANSWER QUESTIONS

17. Wildlife sanctuaries are protected areas where human activities like plantation, cultivation, grazing, falling of trees, hunting and poaching are prohibited completely.
18. Endemic organisms are confined to a limited geographical area. They cannot adapt or live outside their natural habitat. Any disturbance to their habitat will adversely affect them.
19. Even small organisms are important in an ecosystem because every organism forms a part of a food chain/food web/ecosystem.

20. Introduction of a new species may affect the existence of local species due to competition.
21. Yes. Soil erosion removes the fertile top layer of the soil thereby, exposing the hard rocky lower layers which are less fertile.
22. The biodiversity found in Panchmarhi Biosphere Reserve is similar to that found in upper Himalayan peaks and lower Western Ghats.
23. Conservation of natural forests and meeting the basic needs of the people living in or near the forests.
24. Biodiversity refers to the variety of organisms existing in the Earth, their interrelationships and their relationship with the environment.

LONG ANSWER QUESTIONS

25. Yes. Plants absorb carbon dioxide from the atmosphere for photosynthesis. Deforestation results in decreased number of trees leading to accumulation of carbon dioxide in the atmosphere. Carbon dioxide in the atmosphere traps heat rays reflected by the earth which results in global warming.
26. Deforestation results in decreased water holding capacity of soil. This reduces the infiltration of water into the ground which causes floods. On the other hand, deforestation leads to higher level of carbon dioxide in the atmosphere which causes global warming. Scarcity of trees disturbs the water cycle and may reduce rainfall leading to droughts.
27. To prevent deforestation, save energy and water needed for manufacturing the paper. Chemicals used to manufacture the paper also cause pollution.

Chapter 8

MULTIPLE CHOICE QUESTIONS

- | | | | |
|-------|-------|-------|-------|
| 1. c | 2. b | 3. c | 4. a |
| 5. b | 6. d | 7. c | 8. d |
| 9. a | 10. a | 11. c | 12. a |
| 13. c | 14. c | 15. b | 16. c |
| 17. d | 18. a | 19. d | 20. d |
| 21. d | 22. b | 23. c | 24. b |

VERY SHORT ANSWER QUESTIONS

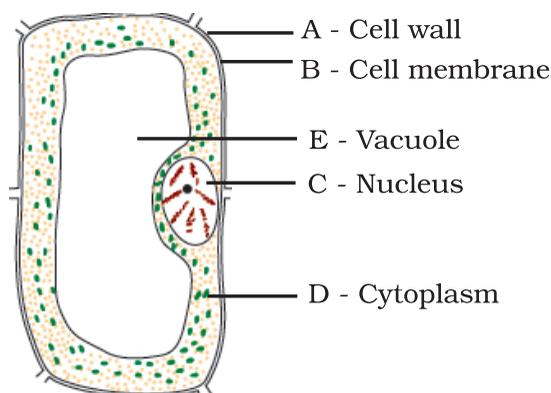
25. Chloroplast and chlorophyll
26. Microscope
27. Nails and hair are both made up of dead cells. They do not have nerve cells. Hence we don't feel the pain when they are cut.
28. Nucleus/chromosomes.
29. Unicellular and Eukaryotic/Protozoan.
30. Cell wall protects the cell contents, gives shape to the cell.

SHORT ANSWER QUESTIONS

31. No, the statement is wrong.
Both unicellular and multicellular organisms respire/all organisms respire.
32. Ans. A-iii, B-iv; C-ii; D-i

33. A. It represents an animal cell
 B. It represents a eukaryotic cell

34.



35.

Cell	Tissue	Organ
RBC	Blood	Blood vessels
WBC	Muscle	Heart
Nerve cell	Nerve	Hand Brain

36. A- Nucleus; B-Cell membrane; C-Genes/Chromosomes
37. a-cell wall; b-cell membrane; c-cytoplasm; d-cell organelles; e-nucleus; f-chromosomes.
38. Although cell organelles have specific structures and perform specific functions but they cannot be called structural and functional units of living organisms. This is so because they can perform their functions only when they are within a living cell. They cannot function outside the cell as an independent unit.
39. As plants cannot move they need protection against variations in temperature, high wind speed, atmospheric moisture, etc. Therefore, for protection plant cell..... membrane. This layer is called the cell wall. Plant cells have an additional layer surrounding the cell membrane.

40. ➤ I agree because of the cells in the body of an elephant is not necessarily bigger than those in a rat, it is not true that bigger organisms have cells of bigger size in their body.
- The size of the cell in an organism is related to the function to performs. For example, the nerve cells in both, the elephant and the rat is are long and branched. They perform the same function, that of transferring messages.

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Chapter 9

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|------|------|
| 1. c | 2. d | 3. b | 4. c |
| 5. a | 6. d | 7. b | 8. b |
| 9. d | 10. a | | |

VERY SHORT ANSWER QUESTIONS

11. During fertilisation, only the nucleus of the sperm moves into the egg cell and fuses with the egg nucleus to form the zygote. The sperm degenerates.
12. egg, caterpillar, pupa, silk moth
13. It ensures the continuation of species generation after generation.
14. Dogs do not lay eggs.
15. A layer of jelly covers the eggs of frog and provides protection.

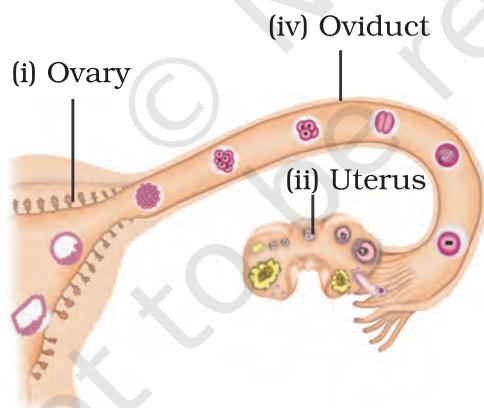
SHORT ANSWER QUESTIONS

16. Single, asexual, nucleus, body, binary
17. In human beings, body parts of an adult are present from the time of birth itself. Whereas, in metamorphosis, the parts of the adult are different from those at the time of birth.
18. Although mother gives birth to a child, fertilisation involves two gametes, one from the mother and the other from father. The zygote, therefore has both father and mother's contribution. Since the zygote develops into the baby it has characters of both parents.
19. Hydra reproduces by budding where an outgrowth arises from the parent and develops into a new individual. Amoeba reproduces by binary fission in which the division of nucleus is followed by division of the cell resulting in two individuals.

20. (a) F; External fertilisation occurs only in water.
(b) F; The eggs of fish are covered by a jelly for protection.
(c) F; Human sperm has a head, middle piece and tail.
(d) T
21. Because they have to be motile and reach the non-motile female gamete.
22. The figure shows an amoeba undergoing binary fissions with a dividing nucleus.
23. (a) A-sperm; B-ovum (egg)
(b) Fertilisation
(c) Sperm nucleus fuses with the egg nucleus to form the zygote.

LONG ANSWER QUESTIONS

24. Female fish release eggs into water and male fish releases sperms. Sperms swim randomly in water and comes in contact with the eggs. The nucleus of the sperm moves into the egg and fuses with it. Since fertilisation occurs in water, outside the female body, it is external fertilisation.
- 25.



26. Hens are oviparous in which internal fertilisation takes place. The fertilised egg develops into an embryo inside the body. However, the development of chick from the embryo takes place outside the body.

Frogs are oviparous in which both fertilisation and development of zygote to embryo and young ones occurs outside the body.

27. (i) (a) Embedding of the embryo in the uterus.
(b) Fertilisation.
(c) Zygote formation and development of an embryo from the zygote.
(d) Zygote showing fusion of nuclei.
- (ii) The correct sequence is
c, b, d, a
- (iii) Zygote formation
The sperm and the egg nuclei fuses to form a single nucleus resulting in the formation of a fertilised egg or zygote.
(Note: One step is explained as an example. Students may explain any other step.)

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Chapter 10

MULTIPLE CHOICE QUESTIONS

1. c 2. b 3. d 4. d
5. b 6. d

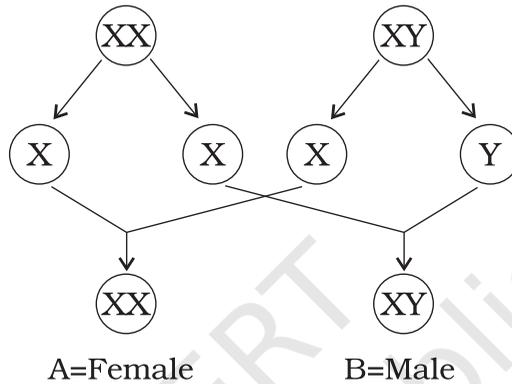
VERY SHORT ANSWER QUESTIONS

7. (a) menarche, menopause (b) metamorphosis
(c) muscles, larynx (d) Adrenalin
8. (a) fertilised egg.
(b) blood stream, target site.
(c) Testosterone, estrogen, secondary sexual.
(d) pituitary gland.
9. (a) Target site
(b) Sweat glands/salivary glands/oil glands (any one)
(c) Hormones
(d) Puberty
10. Testosterone.
11. Estrogen.

SHORT ANSWER QUESTIONS

12. a-i; b-iv; c-ii; d-i.
13. Lila's diet is not a balanced diet because her meals does not contain the adequate nutritional requirement. She takes only proteins and carbohydrates in every meal. She requires to take vitamins and minerals in her meals to protect her from various diseases. Thus, I would suggest her to include fruits and vegetables in her meals.
14. Two features seen in boys at puberty are:
(i) Growth of facial hairs
(ii) Voice becomes hoarse.
- Two features seen in girls at puberty are:
(i) Development of breasts.
(ii) Region below the waist becomes wider.

15. Several medicines have adverse side effects and have specific dosage levels which if not followed may harm the body. Drugs can be addictive too and can ruin our health and happiness.
16. No. They are not healthy eating habits because potato chips and burgers have very little nutritional value.
17. (a) nutrients, (b) thyroxine, (c) ductless, (d) high-pitched, deep
- 18.

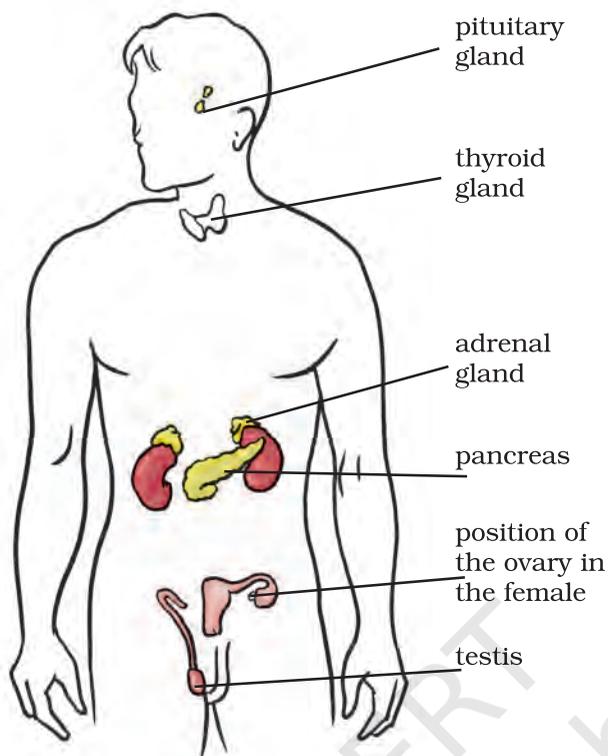


LONG ANSWER QUESTIONS

19.

Body Changes	
Boys	Girls
Broad shoulders	Wider region below waist
Wider chests	Development of mammary glands
Growth of muscles	Acne and pimples on face
Growth of facial hair	Development of sex organs
Acne and pimples on face	High-pitched voice
Development of sex organs	Development of pubic hair
Development of pubic hair	

20.



21.

S. No.	Food items	Major Nutrient	Functions
1.	Pulses and nuts	Proteins	Growth, repair of body cells
2.	Orange and Amla	Iron and Vitamins	Formation of blood keeps the body healthy
3.	Sugar, Roti	Carbohydrates	Provide energy
4.	Oils	Fats	Provide energy
5.	Vegetables	Vitamins and Minerals	Keeps the body healthy and disease free

22. (a) Adrenaline (b) Growth hormone
(c) Insect hormones (d) Thyroxine
23. No, this thickening of the uterine wall is not permanent.
If the egg gets fertilised, it starts developing and gets embedded in the uterine wall resulting in pregnancy. During pregnancy no more eggs are released and the thickened lining is discharged only when the baby is born. However, if fertilisation does not occur, the released egg and the thickened lining are shed off resulting in menstruation.
24. The swelling on the neck of Radha may have been because of goiter, a condition of the thyroid gland during which the gland produces insufficient quantity of thyroxine. However, the protrusion in John's throat would be Adam's apple, a result of growth of voice box in adolescent boys.
25. (a) The red line represents the height of boys.
(b) The blue line represents the height of girls.
(c) At the onset of puberty, girls grow faster in height than the boys and by the age of 18 years, approximately both reach their maximum height.
(d) No, the rate of growth in height varies among individuals. Some may grow in height suddenly at puberty and then slow down, while others may grow gradually.
26. During adolescence, the secretion of sweat glands and sebaceous glands increases leading to formation of acne and pimples. Regular face wash keeps the face clean and dry and helps to reduce the pimples.
27. In our country, the legal age for marriage is 18 years for girls and 21 years for boys. This is because teenage mothers are not prepared mentally or physically for motherhood. Early marriage and motherhood causes health problems in both mother and the child. It also curtails employment opportunities for the young woman and may cause mental agony as she is not ready to shoulder responsibilities of motherhood.
Also, the boys before that age may not be mentally matured and financially secure enough to take on the responsibilities of a family.
28. (Open Ended) students may write about the effects of nutrition, hormones, exercises, disease, etc. on the height.

Chapter 11

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|------|------|------|
| 1. a | 2. c | 3. b | 4. d |
| 5. d | 6. b | 7. a | 8. a |

VERY SHORT ANSWER QUESTIONS

- Muscular force.
- While walking we apply force on the ground.
- Towards east.
- Magnetic force.
- Electrostatic force.
- Force of gravity.
- Yes
- Upward force is larger than the force of gravity.
- Yes

SHORT ANSWER QUESTIONS

- The force changes the shape of the dough.
- Force of gravity. No, without the parachute his speed will be higher.
- Both the forces are of equal magnitudes and applied in the opposite directions.
- Electrostatic force. The balls have similar charges. They move away due to repulsion between similar charges.
- Earth and fruits.

23. He should apply a force to pull the cart up the slope.
24. Magnetic force (in the upward direction) and force of gravity or the weight of the car (downward). Magnetic force is larger than the force of gravity.

LONG ANSWER QUESTIONS

25. The archer stretches the string of the bow by applying muscular force. In the process the shape of the bow changes. When the string is released, it regains its original position that provides the initial force to set the arrow in motion. The force of gravity that acts on the arrow in the downward direction brings it to the ground.
26. Blunt blades have larger area compared to the sharp-edged blades. Thus, the applied force produces a lower pressure in case of blunt blades, which makes it difficult to cut the cloth.
27. Rod B will go deeper as it has a smaller area of contact, therefore the same force (weight of the rod) produces more pressure. In case of rod A the same force produces less pressure.
28. The woman wearing sandals with flat soles will feel more comfortable while walking on the sandy beach. The flat soles have larger area compared to the sandals with pointed heels. Since the two women are of the same weight, they will apply same force on the ground. Therefore, the pressure exerted by the pointed heels will be more compared to that with sandals having flat soles. As a result the pointed heel sandals will sink more in the sand than the flat sole sandals. Hence, walking with flat sole sandals will be more comfortable.
29. When we prick the surface of an inflated balloon with a needle it exerts a larger pressure because it has a smaller area of contact compared to the finger. The large pressure pierces the surface of the balloon easily.
30. B, D, A, C. Because pressure of a liquid column depends upon the height of the liquid column and not on volume of the liquid.

Chapter 12

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|------|------|------|
| 1. d | 2. b | 3. a | 4. c |
| 5. b | 6. d | 7. c | 8. d |

VERY SHORT ANSWER QUESTIONS

- Larger force will be required to move the heavier block.
- Yes.
- The bicycle with worn out tyres is more likely to skid.
- Force of friction will be zero as the net force on the box is zero.
- No

SHORT ANSWER QUESTIONS

- When rubber soles are used for a long time, their surfaces become smooth. Hence, the friction between the sole and the floor decreases. Therefore, slippers become slippery.
- Yes, rolling friction. If an air cushion is introduced between the wheel and the rails, the friction will decrease.
- The wearing off of cartilage will increase the friction. As a result the movement of joints will become difficult which may lead to joint pains.
- She may rub soil to increase friction between the rope and her hand.
- To increase friction between handle of the bat and hands, to have a better grip.
- To increase friction to make it more effective for grinding again.

20. On the surface covered with sand, it will cover the least distance because sand offers maximum friction against its motion.
21. Because initially they had to apply force to set the card in motion but once the car started rolling, they had to apply force only to balance rolling friction of the car, the value of which is very less.

LONG ANSWER QUESTIONS

22. Friction between grinding stone and the cutting edge of the knife produces heat. As the friction is very large in this case, a large amount of heat is produced and we see sparks flying.
23. The friction between sand paper and metal sheet is very large, compared to that between the ordinary paper and the metal sheet. Thus the sand paper is able to remove the outer dull layer from the metal sheet more effectively and makes it more shining.
24. If the seat cover is very smooth then the friction between our body and the seat is very small. Therefore, when the brakes are applied we tend to slip.
25. They can put rollers below the heavy load. Since, the rolling friction is smaller than the sliding friction putting rollers below the heavy load will make the task easier for them.

Chapter 13

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|------|------|
| 1. b | 2. a | 3. d | 4. a |
| 5. c | 6. a | 7. a | 8. c |
| 9. a | 10. c | | |

VERY SHORT ANSWER QUESTIONS

11. 1650 m
12. Yes, larynx (vocal cords)
13. The speed of sound is lower than that of the speed of light and therefore sound reaches him later than light.
14. Yes, eardrum.
15. Sitar and Ektara (any other musical instruments which produces sound by a vibrating string)

SHORT ANSWER QUESTIONS

16. Time period : 2 s
frequency : 0.5 oscillations/sec
17. If the sound produced by a vibrating body is in the audible range, the sound produced will be heard by us otherwise we will not be able to hear the sound even though the body is vibrating.
18. The frying pan will vibrate. We will not be able to hear the sound of vibration because sound cannot travel in vacuum.
19. No, In space there is vacuum and sound cannot travel in vacuum.
20. Vehicle noise, bursting of crackers, loudspeakers.
(Any other reasonable sources of noise pollution should be accepted)

LONG ANSWER QUESTIONS

21. The loudness of sound depends upon the amplitude of vibration. The amplitude of string is larger when it is plucked with greater force and hence the sound will be louder in that case.
22. **Hint:** Explain how a vibrating body produces sound and how it travels through the air and is heard by us by our ears.
23. The loudness of the sound will decrease as the air is removed slowly from the plastic bottle. If the air in the plastic bottle is removed completely, there is vacuum in the bottle. The sound cannot travel through vacuum and we cannot hear the sound of the alarm clock at all.
24. The noise level is quite low at night. Therefore the sound of the clock appears much clearer at night than in the day.
25. i) Trees must be planted along the roads and around the buildings.
ii) Use of horns should be minimised.
iii) Silencers must be installed in transport vehicles and industrial machines.

(Other reasonable measures should be accepted)

Chapter 14

MULTIPLE CHOICE QUESTIONS

1. d 2. a 3. d 4. a
5. d 6. c 7. d

VERY SHORT ANSWER QUESTIONS

8. (a) Cathode (c) Conductor
(b) Electroplating (d) Chromium
9. A coating of zinc is provided to protect iron from corrosion and rust.
10. No
11. Heating effect of electric current.

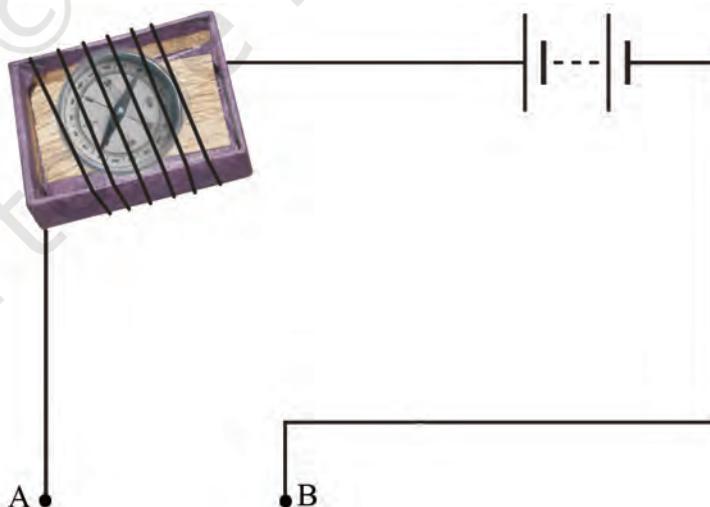
SHORT ANSWER QUESTIONS

12. Addition of another cell increased the current through the bulb sufficiently to make it glow.
13. The current through liquid B could be weak and therefore unable to make the bulb glow. However, it was strong enough for the LED to glow.
14. The spoon should be connected to the negative terminal of the battery. The other electrode should be made of silver.
15. Tin is less reactive than iron. Tin coating prevents food from coming in contact with iron and thus prevents it from getting spoiled.
16. Diagram A shows the correct observation.

LONG ANSWER QUESTIONS

17. No, Yes, No, Yes
18. • Bubbles of gas may be formed on the electrodes.

- Deposits of metal may be seen on electrodes.
 - Change in the colour of the solution may take place.
 - The solution may get heated. (Any three)
19. Yes, copper from the copper sulphate solution will be deposited on the carbon rod. Copper from the copper plate will be dissolved into the copper sulphate solution for electroplating.
20. (i) plate A – Pure copper
(ii) plate B – Impure copper
(iii) the solution – Copper sulphate
- Copper from impure copper plate is transferred to the pure copper plate by the process of electroplating.
21. Yes, air is a poor conductor of electricity. No, under certain conditions, such as during lightning, air may conduct electricity.
22. If the water is distilled water and lemon juice is not added, no current will pass through the circuit. If the water taken is salty, then a feeble current will pass through the circuit and bubbles will be seen on the negative electrode.
23. (i) It indicates the presence of current in the circuit.
(ii) The bulb did not glow because the current was not sufficient to make it glow.
(iii) Deflection in the magnetic compass will increase.
(iv) Deflection in the compass will increase further.
- 24.



Whenever current flows through the circuit the magnetic compass needle shows deflection due to magnetic effect of current.

Chapter 15

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|------|------|
| 1. a | 2. c | 3. c | 4. c |
| 5. d | 6. a | 7. a | 8. c |
| 9. d | 10. a | | |

VERY SHORT ANSWER QUESTIONS

11. (a) True (b) True (c) True (d) False (e) True
12. No
13. The two will attract each other.
14. No divergence of strips will take place.
15. They will repel each other.

SHORT ANSWER QUESTIONS

16. No, it will not be effective. Since lightning conductor was not connected properly to the earth, therefore, the charge will not pass through to the earth.
17. No, it will not occur. The charge separation cannot take place in conductors. Therefore charges will not accumulate on clouds and so lightning cannot take place.
18. A is the lightning conductor and B is the copper plate.
19. No. There is no need to install lightning conductor in the building.
20. Electric charge gets accumulated on the screen. On touching the screen the charge discharges through our body. Thus, we get a slight shock.
21. Lightning conductor does not allow the charge to accumulate on a building as it conducts the charge to the earth, protecting building from being struck by lightning.

22. If a positively charged object is brought in contact with the clip of an electroscope, the negative charge given earlier will be neutralised and the strips will collapse.
23. The charge that was in the electroscope strips will get discharged through our hand. The strips will come back to the original state.

LONG ANSWER QUESTIONS

24. During the development of a thunderstorm, the air currents move upwards while the water droplets move downwards. These vigorous movements of air currents cause separation of charges. The positive charges collect near the upper edges of the clouds and the negative charges accumulate near the lower edges. There is accumulation of positive charges near the ground also. When the magnitude of the accumulated charges become large, the air cannot resist their flow. As a result negative and positive charges meet producing a streak of bright light and sound, called lightning.
25.
 - (i) Take shelter under a table and stay there till the shaking stops.
 - (ii) Stay away from tall and heavy objects that may fall on you.
 - (iii) If you are in bed, do not get up. Protect your head with a pillow.
(If a child gives any other reasonable precautions, it should be accepted)
26. Lightning is an electrical discharge. During lightning atmospheric electric charge may discharge through landline telephone wires and may become dangerous. Therefore it is safer to use a wireless telephone instead of a landline telephone during lightning.
27.
 - (i) Stay away from poles or other metallic objects.
 - (ii) Stay away from tall trees.
 - (iii) Stay away from open vehicles like motorbikes, tractors, construction machinery etc.
(If a child gives any other reasonable precautions, it should be accepted)
28. The aluminium strips will not show any repulsion. The charged body will not transfer any charge to the ebonite rod as ebonite rod is an insulator. As a result there will be no charge on the aluminium strips and no repulsion will occur.

Chapter 16

MULTIPLE CHOICE QUESTIONS

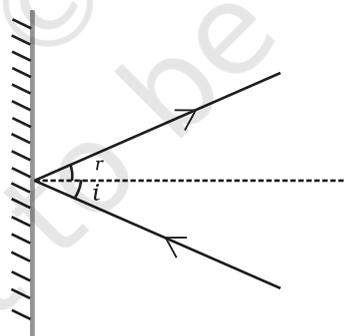
- | | | | |
|------|------|------|------|
| 1. a | 2. b | 3. d | 4. a |
| 5. a | 6. c | 7. b | 8. c |

VERY SHORT ANSWER QUESTIONS

9. Iris.
10. Persistence of vision.
11. Infinite number of times.
12. 30° .
13. 12 cm.

SHORT ANSWER QUESTIONS

14. Light is split into its constituent colours. Rainbow is an example.
- 15.



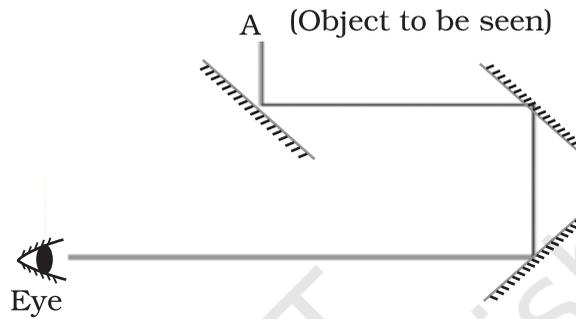
16. No, the image of the child cannot be obtained on a screen.
17. A large pupil and large cornea allows more light to enter their eyes and they can see objects even in faint light.
18. The type of lens in our eyes is convex. It forms images on the retina.

19. In people suffering from cataract the eye lens becomes clouded. Cataract is treated by replacing the opaque lens with a new artificial lens.

LONG ANSWER QUESTIONS

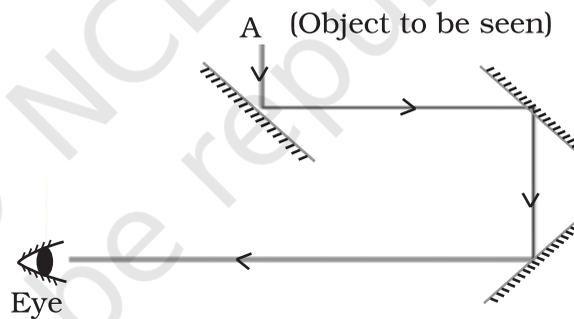
20. (a) Three

(b)



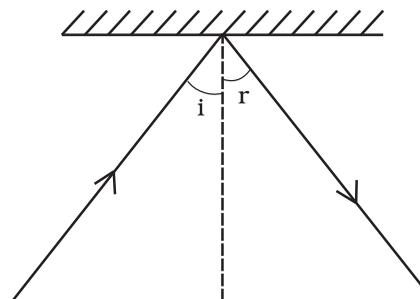
(c) 45°

(d)

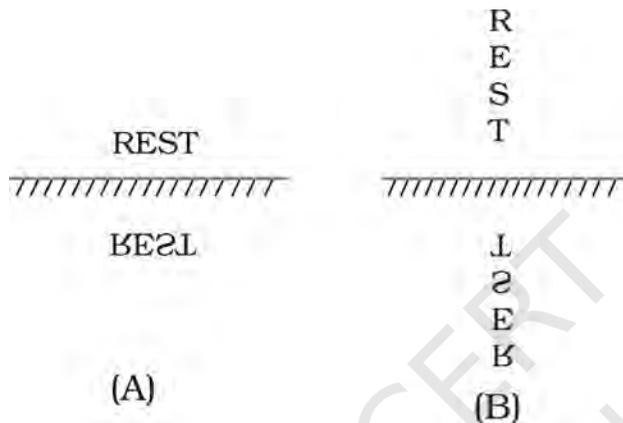


(e) No, he will not be able to see the objects.

21. The Fig. in all the three cases after correction should be as in the given Fig.



22. The cartoon film we see is actually the projection of static pictures on the screen in a specific order. Usually the static pictures are shown in a sequence at the rate of 24 pictures per second one after the other giving us the perception of movement.
23. The kaleidoscope gives a number of images formed by reflection from the mirrors inclined to one another. Designers and artists use kaleidoscope to get ideas for new patterns to design wallpapers, Jewellery and fabrics.
- 24.



25. 1. Ciliary muscle
2. Iris
3. Lens
4. Cornea
5. Retina
6. Optic Nerve

Chapter 17

MULTIPLE CHOICE QUESTIONS

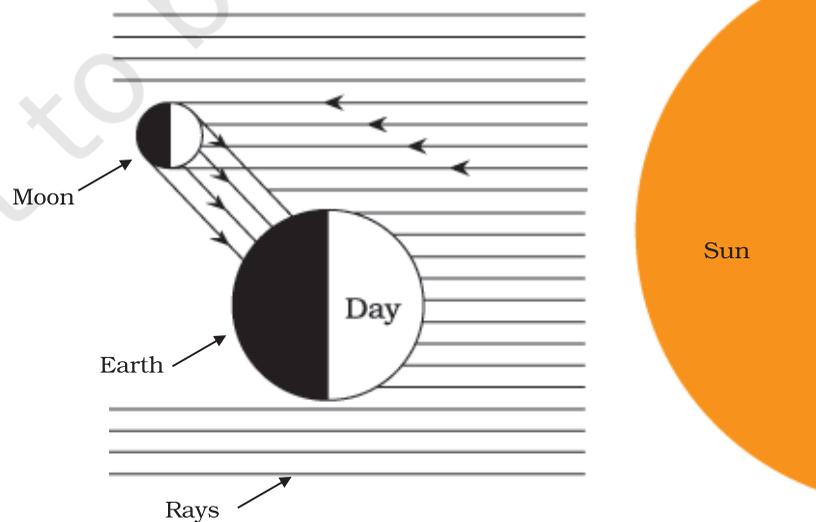
1. d 2. a 3. b 4. c
5. a 6. d 7. a

VERY SHORT ANSWER QUESTIONS

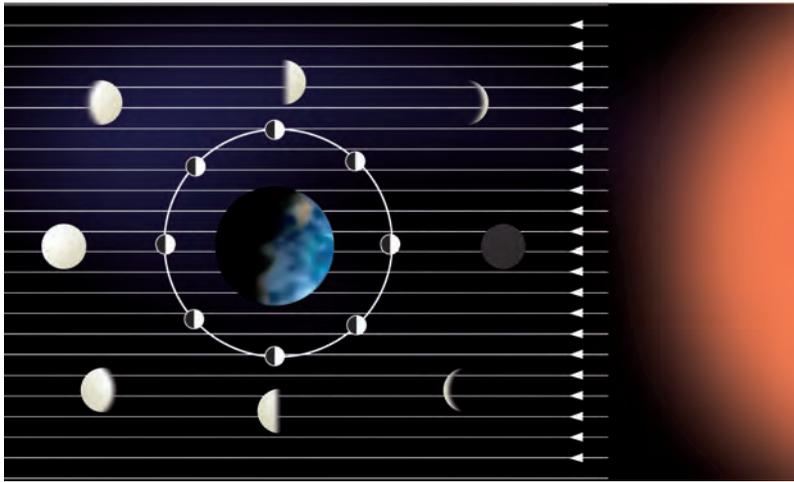
8. No, they emit light all the time.
9. Boojho is correct.
10. a. False; b. False; c. True; d. True; e. True; f. False
11. Approximately 29 days.
12.



13. C



14.



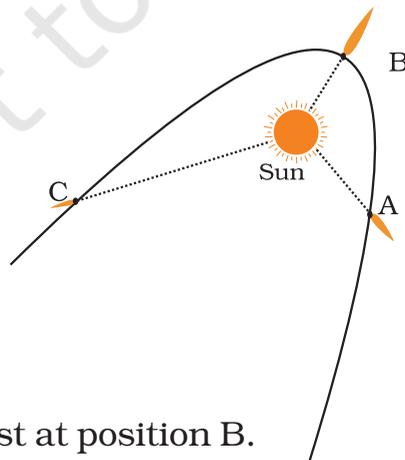
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SHORT ANSWER QUESTIONS

15. We will see the change after 10 years.
16. The brightness of a meteor is extremely small compared to that of the sun, therefore, it is not seen during day time.
17. It changes its shape because we see only that part of the moon from which the light of the sun is reflected towards us.
18. No, because the position of the moon keeps changing during the night.

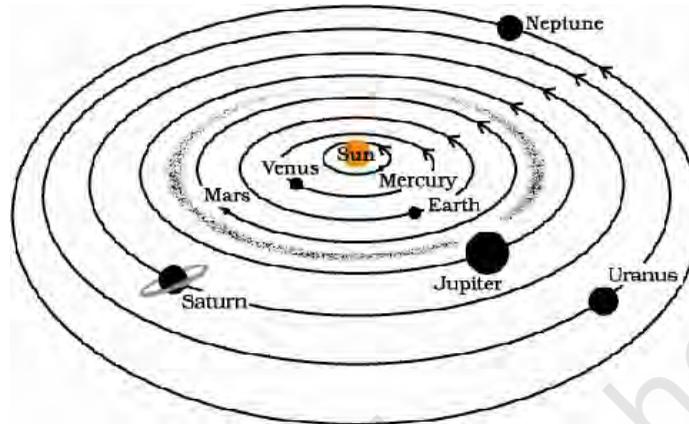
LONG ANSWER QUESTIONS

19. No. The phases are seen because the moon does not emit its own light and reflects the light of sun.
- 20.

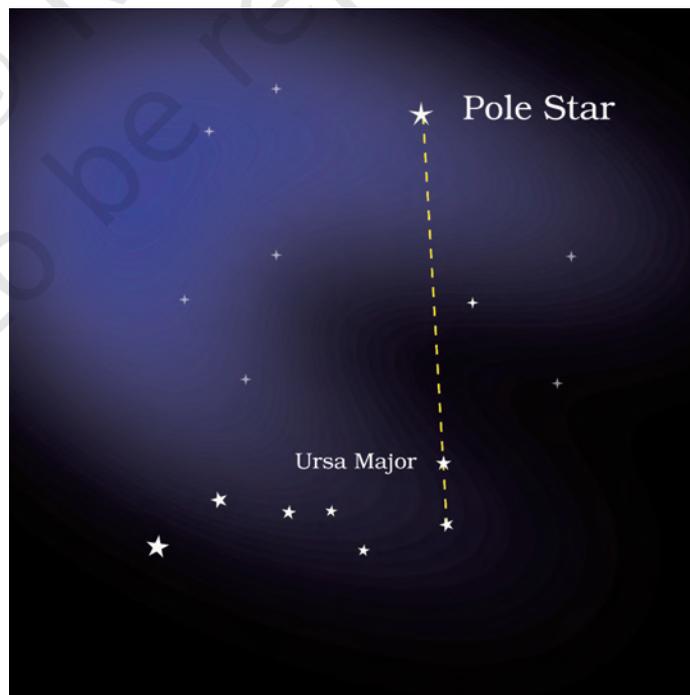


The tail will be longest at position B.

21. This is because the period of rotation of the moon on its axis is equal to the period of its revolution round the earth.
22. (a) in the eastern part of the sky; (b) in the western part of the sky
- 23.



24. **Hint:** Life may no longer exist. (See page 227-228 of textbook)
25. Locate the two end stars of Ursa Major. Imagine a straight line passing through these stars as shown in the figure below. Extend this imaginary line towards the north direction. This line will lead to a star which is not too bright. This is pole star.



Chapter 18

MULTIPLE CHOICE QUESTIONS

- | | | | |
|------|-------|-------|-------|
| 1. b | 2. c | 3. b | 4. a |
| 5. a | 6. c | 7. d | 8. c |
| 9. b | 10. d | 11. c | 12. a |

VERY SHORT ANSWER QUESTIONS

- Chlorofluorocarbons.
- (i) Combustion of fuel
(ii) Industrial activities
- (i) sulphur dioxide
(ii) nitrogen dioxide
- These data can be used to generate awareness about air pollution among people.
- Solar energy and wind energy.
- Lead, arsenic, fluorides (any two)

SHORT ANSWER QUESTIONS

- It is not right to burn dry leaves as it causes air pollution. The right way to dispose off the dry leaves is to convert them into compost.
- A large number of automobiles stop for a short period at red light through out the day and release a large quantity of gases which create air pollution.
- (a) unwanted, harmful, living, non-living, air pollution.
(b) industries, air, refineries, gaseous, sulphur dioxide, nitrogen dioxide.
(c) brushing, tap, litres
(d) drinking, potable
(e) microorganisms, dissolved.

22. (a)–(iii), (b)–(iv), (c)–(ii), (d)–(i)
23. Statements (b) and (d) are correct statements. The correct form of statements (a), (c) and (e) are as follows-
- (a) We can survive for some time without food but we cannot survive even for a few minutes without air.
 - (c) Carbon monoxide is produced by incomplete burning of fuels such as coal, petrol, diesel.
 - (e) Water which is suitable for drinking is called potable water.
24. (a) nitrogen, oxygen
(b) carbon monoxide, smoke
(c) Methane, greenhouse gases
(d) global warming
(e) sewage, polluted

LONG ANSWER QUESTIONS

25. **Hint:**
- CFCs stand for chlorofluorocarbons.
 - Refrigerators, air conditioners etc.
 - Damage the ozone layer of the atmosphere.
26. **Hint:** Pollutants in air are discolouring white marble of Taj Mahal. The pollutants like sulphur dioxide and nitrogen dioxide react with the water vapour present in the atmosphere to form sulphuric acid and nitric acid respectively.
27. **Hint:** CO_2 takes heat and does not allow it to escape into space. As a result, the average temperature of the earth's atmosphere is gradually increasing.
28. **Hint:**
- To reduce air pollution.
 - To control global warming.
29. **Hint:**
1. Filtration
 2. Boiling
 3. By adding chlorine tablets.

30. **Hint:**

Reduce – While brushing your teeth, bathing etc.. we should not keep our taps on.

Reuse – Water used for washing vegetables, rice etc. can be used for gardening.

Recycle – Dirty water can be recycled after purification.

31. (i) (a) point sources (b) non-point sources.
 (ii) Easily identified source or place of pollution is called point source e.g. municipal, industrial discharge pipe etc.
 (iii) Agricultural run off, acid rain.

32.

¹ C	H	L	O	R	O	F	L	U	O	R	O	C	A	R	B	² O	N
																Z	
	⁷ G								⁴ O							O	
³ ₅ C	A	R	B	O	N	M	O	N	O	X	I	D	E			N	
H	N								Y							E	
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