**FOCUS ACADEMY**

Kg to 12

English&Gujarati Medium

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**Class – 8 Sub- Science**

**CHAPTER-1 FOCUS ACADEMY 9099818013 8780997670**

Question 1.  
Select the correct word from the following list and fill in the blanks.  
float, water, crop, nutrients, preparation  
(a) The same kind of plants grown and cultivated on a large scale at a place is called \_\_\_\_\_  
(b) The first step before growing crops is \_\_\_\_\_\_\_ of the soil.  
(c) Damaged seeds would \_\_\_\_\_\_ on top of the water.  
(d) For growing a crop, sufficient sunlight and \_\_\_\_\_\_ and \_\_\_\_\_\_ from the soil are essential.  
Answer:  
(a) crop  
(b) preparation  
(c) float  
(d) water, nutrients

Question 2.  
Match items in column A with those in column B.

|  |  |
| --- | --- |
| A | B |
| (i) Kharif crops | (a) Food for cattle |
| (ii) Rabi crops | (b) Urea and superphosphate |
| (iii) Chemical fertilisers | (c) Animal excreta, cow dung, urine and plant waste |
| (iv) Organic manure | (d) Wheat, gram, pea |
|  | (e) Paddy and maize |

Answer:  
(i) (e)  
(ii) (d)  
(iii) (b)  
(iv) (c)

Question 3.  
Give two examples of each.  
(a) Kharif crop  
(b) Rabi crop  
Answer:  
(a) Kharif crop: Paddy and maize  
(b) Rabi crop: Wheat and gram

Question 4.  
Write a paragraph in your own words on each of the following.  
(a) Preparation of soil  
(b) Sowing  
(c) Weeding  
(d) Threshing  
Answer:  
(a) Preparation of soil: Soil preparation is necessary before growing a crop. It involves tilling and loosening the soil. This allows the roots to penetrate deep in the soil and to breath easily even when they are deep.

(b) Sowing: The process of putting seeds into the soil is called sowing. The tool used traditionally for sowing seeds is funnel-shaped. Nowadays a seed drill is used for sowing with the help of tractors. This tool sows the seed uniformly at a proper distance and depth.

(c) Weeding: Some undesirable plants grow along with crop and these unwanted plants are called weeds. The process of removing these unwanted plants is called weeding.

(d) Threshing: The process of separating the grain seeds from the chaff is called threshing.

Question 5.  
Explain how fertilisers are different from manure.  
Answer:

|  |  |
| --- | --- |
| Fertilisers | Manures |
| (i) A fertiliser is an inorganic salt. | (i) Manure is a natural substance obtained by the decomposition of cattle dung, human waste and plant residues. |
| (ii) A fertiliser is prepared in factories. | (ii) Manure can be prepared in the fields. |
| (iii) A fertiliser does not provide any humus to the soil. | (iii) Manure provides a lot of humus to the soil. |
| (iv) Fertilisers are very rich in plant nutrients like nitrogen, phosphorus and potassium. | (iv) Manure is relatively less rich in plant nutrients. |

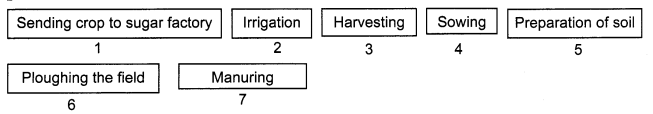
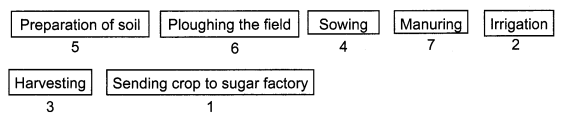
Question 6.  
What is irrigation? Describe two methods of irrigation which conserve water.  
Answer:  
The artificial method of watering the plants for assisting in their growth is called irrigation. Main sources of irrigation are wells, tube-wells, ponds, lakes, rivers.  
Two methods which help us to conserve water are:  
(i) Sprinkler irrigation system: This irrigation system has an arrangement of vertical pipes with rotating nozzles on the top. It is more useful in the uneven and sandy land where sufficient water is not available.

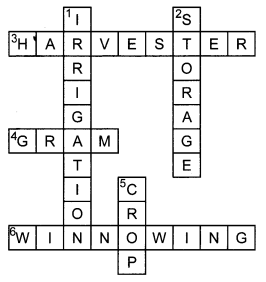
(ii) Drip irrigation system: This irrigation system has an arrangement of pipes or tubes with very small holes in them to water plants drop by drop just at the base of the root. It is very efficient as water is not wasted at all.

Question 7.  
If wheat is sown in the kharif season, what would happen? Discuss.  
Answer:  
Wheat crop is sown from November/December to March/April. It is grown in winter and requires less water. If wheat is sown in Kharif season, its production will be decreased considerably.

Question 8.  
Explain how soil gets affected by the continuous plantation of crops in a field.  
Answer:  
Continuous plantation of crops makes the soil poorer in certain nutrients as the crops take up nutrients from the soil. The soil becomes infertile. It does not get enough time to replenish the nutrients.

Question 9.  
What are the weeds? How can we control them?  
Answer:  
The undesirable and unwanted plants which grow naturally along with the crop are called weeds. The growth of weeds can be controlled by adopting many ways. Tilling before sowing of crops helps in the uprooting and killing of weeds, which may then dry up and get mixed with the soil. Weeds are also controlled by using certain chemicals, called weedicides. Weedicides are sprayed in the fields to kill the weeds.

Question 10.  
Arrange the following boxes in the proper order to make a flow chart of sugarcane crop production.  
  
Answer:  


Question 11.  
Complete the following word puzzle with the help of clues given below.  
Down  
1. Providing water to the crops.  
2. Keeping crop grains for a long time under proper conditions.  
5. Certain plants of the same kind grown on a large scale.  
Across  
3. A machine used for cutting the matured crop.  
4. A rabi crop that is also one of the pulses.  
6. A process of separating the grain from the chaff.  
Answer:  


**CHAPTER-2 FOCUS ACADEMY 9099818013 8780997670**

Question 1.  
Fill in the blanks.  
(a) Microorganisms can be seen with the help of a \_\_\_\_\_  
(b) Blue-green algae fix \_\_\_\_\_\_ directly from the air to enhance the fertility of soil.  
(c) Alcohol is produced with the help of \_\_\_\_\_  
(d) Cholera is caused by \_\_\_\_\_\_  
Answer:  
(a) microscope  
(b) nitrogen  
(c) yeast  
(d) bacteria

Question 2.  
Tick the correct answer.  
(a) Yeast is used in the production of  
(i) sugar  
(ii) alcohol  
(iii) hydrochloric acid  
(iv) oxygen  
Answer:  
(ii) alcohol

(b) The following is an antibiotic:  
(i) sodium bicarbonate  
(ii) streptomycin  
(iii) alcohol  
(iv) yeast  
Answer:  
(ii) streptomycin

(c) Carrier of malaria-causing protozoan is:  
(i) female Anopheles mosquito  
(ii) cockroach  
(iii) housefly  
(iv) butterfly  
Answer:  
(i) female Anopheles mosquito

(d) The most common carrier of communicable diseases is  
(i) ant  
(ii) housefly  
(iii) dragonfly  
(iv) spider  
Answer:  
(ii) housefly

(e) The bread or idli dough rises because of:  
(i) heat  
(ii) grinding  
(iii) growth of yeast cells  
(iv) kneading  
Answer:  
(iii) growth of yeast cells

(f) The process of conversion of sugar into alcohol is called  
(i) nitrogen fixation  
(ii) moulding  
(iii) fermentation  
(iv) infection  
Answer:  
(iii) fermentation

Question 3.  
Match the organisms in column A with their action in column B.

|  |  |
| --- | --- |
| A | B |
| (i) Bacteria | (a) Fixing nitrogen |
| (ii) Rhizobium | (b) Setting of curd |
| (iii) Lactobacillus | (c) Baking of bread |
| (iv) Yeast | (d) Causing malaria |
| (v) A protozoan | (e) Causing cholera |
| (vi) A virus | (f) Causing AIDS |
|  | (g) Producing antibodies |

Answer:  
(i) (e) (ii) (a) (iii) (b) (iv) (c) (v) (d) (vi) (f)

Question 4.  
Can microorganisms be seen with the naked eye? If not, how can they be seen?  
Answer:  
The microorganisms cannot be seen with our naked eyes because they are very small in size. Some of these, such as fungus growing on bread, can be seen with a magnifying glass. Others cannot be seen without the help of a microscope.

Question 5.  
What are the major groups of microorganisms?  
Answer:  
Microorganisms are classified on the basis of their size into four major groups. These groups are:  
(a) Bacteria  
(b) Fungi  
(c) Protozoa  
(d) Some algae

Question 6.  
Name the microorganisms which can fix atmospheric nitrogen in the soil.  
Answer:  
Rhizobium, Clostridium and Azotobacter.

Question 7.  
Write 10 lines on the usefulness of microorganisms in our lives.  
Answer:  
Microorganisms are useful to us in many ways. For example,

* Bacteria like Lactobacillus convert milk into curd.
* Bacteria are also involved in the making of cheese.
* Acetobacter aceti is used for producing acetic acid from alcohol.
* Yeast is used in the commercial production of alcohol, wine and bakery products.
* Some specific microorganisms are helpful in manufacturing of antibiotics.
* Microorganisms act as cleansing agents and decompose the waste products into manure.
* Dead or weakened microbes are used in the preparation of vaccines.
* Some bacteria fix atmospheric nitrogen and increase soil fertility.
* Algae, yeast, fungi or bacteria may be used as an ingredient or a substitute for protein-rich foods that are suitable for human or animal consumption.
* Some microorganisms are taken as probiotics, that are believed to provide health benefits when consumed.

Question 8.  
Write a short paragraph on the harms caused by microorganisms.  
Answer:  
Microorganisms are harmful to us in many ways. For example, microorganisms, called pathogens cause disease in humans, plants and animals. Pathogens or germs enter a healthy body through air, water, contaminated food and infected person by direct or indirect contact or by the carrier. Common ailments like cold, influenza (flu), cough, polio, chicken pox are caused by viruses. Foot and mouth diseases in the cattle are also caused by viruses. Typhoid, tuberculosis (TB) are caused by bacteria. Anthrax a dangerous human and cattle diseases is also caused by bacteria.

Diseases like dysentery and malaria are caused by protozoa. Ringworm is caused by fungi. Several microbes causes diseases in plants and thus reduces the yield. Citrus canker, a bacterial disease, affects trees of citrus fruit and is spread by air. Bhendi yellow vein mosaic disease is caused by a virus and is spread by insects in lady fingers. Rust of wheat is a fungal disease spread through air. Microorganisms that grow on our food sometimes produce toxic substances. These make the food poisonous causing serious illness and even death. This food-borne illness is called food poisoning.

Question 9.  
What are antibiotics? What precautions must be taken while taking antibiotics?  
Answer:  
Antibiotics are the medicines which kill or stop the growth of the disease-causing microbes. They are manufactured by growing specific microorganisms. They are used to cure a variety of diseases.

It is important to take antibiotic only on the advice of a qualified doctor. One must finish the course prescribed by the doctor to make the drug more effective. Antibiotics must not be taken unnecessarily because it may kill beneficial bacteria also. Antibiotics are, however, not effective against cold and flu as they are caused by viruses.

**CHAPTER-3 FOCUS ACADEMY 9099818013 8780997670**

Question 1.  
Explain why some fibres are called synthetic.  
Answer:  
Some fibres are called synthetic fibres because they are made by man using chemicals.

Question 2.  
Mark (✓) the correct answer.  
Rayon is different from synthetic fibres because  
(a) it has a silk-like appearance.  
(b) it is obtained from wood pulp.  
(c) its fibres can also be woven like those of natural fibres.  
Answer:  
(b) it is obtained from wood pulp.

Question 3.  
Fill in the blanks with appropriate words.  
(a) Synthetic fibres are also called \_\_\_\_ or \_\_\_\_ fibres.  
(b) Synthetic fibres are synthesised from a raw material called \_\_\_\_\_  
(c) Like synthetic fibres, plastic is also a \_\_\_\_\_  
Answer:  
(a) man-made, artificial fibres  
(b) petrochemicals  
(c) polymer

Question 4.  
Give examples which indicate that nylon fibres are very strong.  
Answer:  
The following examples indicate that nylon fibres are very strong.  
(i) They are used for making parachutes and ropes for rock climbing.  
(ii) They are used in making seat-belts, fishing nets, tyre cord, a string for sports rackets and musical instruments.

Question 5.  
Explain why plastic containers are favoured for storing food.  
Answer:  
Plastic containers are favoured for storing food because of the following reasons:  
(i) the plastics do not react with the food stored in them.  
(ii) the plastics are lightweight and are strong.  
(iii) they are easy to handle and safe.

Question 6.  
Explain the difference between thermoplastic and thermosetting plastics.  
Answer:

|  |  |
| --- | --- |
| **Thermoplastics** | **Thermosetting plastics** |
| (i) These plastics softened on heating and can be bent easily. | (i) These plastics when moulded once, can’t be softened again. |
| (ii) They do not lose their plasticity. | (ii) They lose their plasticity. |
| (iii) Examples are polyethene, PVC, etc. | (iii) Examples are bakelite and melamine. |

Question 7.  
Explain why the following are made of thermosetting plastics.  
(a) Saucepan handles  
(b) Electric plugs/switches/plugboards  
Answer:  
(a) Since, thermosetting plastics are a bad conductor of heat and do not get heated up while cooking, they are used for making saucepan handles.  
(b) Since thermosetting plastics are a bad conductor of electricity and the electric current does not pass through such plastics, they are used for making electric plugs/switches/plugboards.

Question 8.  
Categorise the materials of the following products into ‘can be recycled’ and ‘can not be recycled’.  
Telephone instruments, plastic toys, cooker handles, carry bags, ballpoint pens, plastic bowls, plastic covering on electrical wires, plastic chairs, electrical switches.  
Answer:

|  |  |
| --- | --- |
| **Can be recycled** | **Cannot be recycled** |
| Plastic toys carry bags, plastic bowls, plastic covering on electrical wires, plastic chairs. | Telephone instruments, cooker handles, ballpoint pens, electrical switches. |

Question 9.  
Rana wants to buy shirts for summer. Should he buy cotton shirts or shirts made from synthetic material? Advise Rana, giving your reason.  
Answer:  
He should buy cotton shirts. This is because cotton has more capacity to hold moisture than synthetic clothes. In summers we have extensive sweating which is easily soaked by cotton shirts and hence, cotton clothes are much better than the clothes made from synthetic material.

Question 10.  
Give examples to show that plastics are non-corrosive in nature.  
Answer:  
The literal meaning of non-corrosive is resistant to get destroyed by chemical action.  
Following are the examples that show that plastics are non-corrosive in nature.

* Plastic containers do not react with items stored in it.
* They do not get rusted when exposed to moisture and air.
* They do not decompose when left in open for a long period.

Question 11.  
Should the handle and bristles of a toothbrush be made of the same material? Explain your answer.  
Answer:  
No, the handle and bristles of a toothbrush should not be made of the same material. This is because our gums are soft and the bristles should be made of soft material so that it does not harm the gums. On the other hand, the handles should be made up of hard material so that it can give a firm grip.

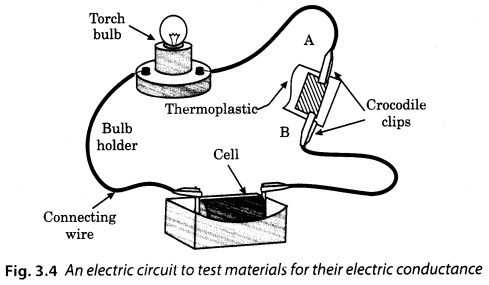
Question 12.  
‘Avoid plastics as far as possible’. Comment on this advice.  
Answer:  
Plastics must be avoided as far as possible. The materials made of plastics are non-biodegradable. The use of plastics has a bad effect on the environment. When the plastics are burnt, it releases a lot of poisonous fumes into the atmosphere causing air pollution. These plastic materials when eat up by the animals (like cows), choke their respiratory system. This can cause death of these animals. The waste plastic articles thrown here and there carelessly get into dirty water drains and sewers, and block them. In a nutshell, plastics can be considered a threat to our environment.

Question 13.  
Match, the terms of column A correctly with the phrases given in column B.

|  |  |
| --- | --- |
| A | B |
| (i) Polyester | Prepared by using wood pulp |
| (ii) Teflon | Used for making parachutes and stockings |
| (iii) Rayon | Used to make non-stick cookware |
| (iv) Nylon | Fabrics do not wrinkle easily |

Answer:  
(i) (d)  
(ii) (c)  
(iii) (a)  
(iv) (b)

Question 14.  
‘Manufacturing synthetic fibres is actually helping the conservation of forests’. Comment.  
Answer:  
In the manufacturing of synthetic fibres, we use only chemical substances and no natural materials, thus, in turn, we conserve forests.

Question 15.  
Describe an activity to show that thermoplastic is a poor conductor of electricity.  
Answer:  
Arrange a circuit as shown in the given figure. Leave a gap between two ends of the wire. Place a ther-moplastic in the gap. Observe the bulb.  
  
It is observed that the bulb does not glow. This shows that thermoplastic is a poor conductor of electricity.

**CHAPTER-4 FOCUS ACADEMY 9099818013 8780997670**

Question 1.  
Which of the following can be beaten into thin sheets?  
(a) Zinc  
(b) Phosphorus  
(c) Sulphur  
(d) Oxygen  
Answer:  
(a) Zinc

Question 2.  
Which of the following statements is correct?  
(a) All metals are ductile.  
(b) All non-metals are ductile.  
(c) Generally, metals are ductile.  
(d) Some non-metals are ductile.  
Answer:  
(c) Generally, metals are ductile

Question 3.  
Fill in the blanks.  
(a) Phosphorus is a very \_\_\_\_ non-metal.  
(b) Metals are \_\_\_\_\_ conductors of heat and \_\_\_\_\_  
(c) Iron is \_\_\_\_\_\_ reactive than copper.  
(d) Metals react with acids to produce \_\_\_\_\_\_ gas.  
Answer:  
(a) reactive  
(b) good, electricity  
(c) more  
(d) hydrogen

Question 4.  
Mark ‘T’ if the statement is true and ‘F’ if it is false.  
(a) Generally, non-metals react with acids.  
(b) Sodium is a very reactive metal.  
(c) Copper displaces zinc from zinc sulphate solution.  
(d) Coal can be drawn into wires.  
Answer:  
(a) False  
(b) True  
(c) False  
(d) False

Question 5.  
Some properties are listed in the following Table. Distinguish between metals and non-metals on the basis of these properties.

Answer:

|  |  |  |
| --- | --- | --- |
| **Properties** | **Metals** | **Non-metals** |
| 1. Appearance | have metallic lustre | dull |
| 2. Hardness | Hard | soft |
| 3. Malleability | Malleable | non-malleable |
| 4. Ductility | Ductile | non-ductile |
| 5. Heat Conduction | good conductors | bad conductors |
| 6. Conduction of Electricity | good conductors | bad conductors/insulators |

Question 6.  
Give reasons for the following.  
(a) Aluminium foils are used to wrap food items.  
(b) Immersion rods for heating liquids are made up of metallic substances.  
(c) Copper cannot displace zinc from its salt solution.  
(d) Sodium and potassium are stored in kerosene.  
Answer:  
(a) Aluminium is highly malleable and it can be easily beaten in sheets to make its foil for wrapping purposes. It is also soft and does not react with food items. That is why aluminium foils are used . to wrap food items.  
(b) Immersion rods made up of metallic substances because metals are good conductors of heat and electricity. They get hot very soon on the passage of electric current and warm the water.

(c) Copper is less reactive than zinc. So it cannot displace zinc from its solution.

(d) Sodium and potassium are highly reactive, so they are stored in kerosene.

Question 7.  
Can you store the lemon pickle in an aluminium utensil? Explain.  
Answer:  
No, we cannot store lemon pickle in an aluminium utensil because aluminium is a metal and metals readily react with acids to produce hydrogen. When aluminium comes in contact with lemon, which is acidic, would react to give hydrogen and the pickles will be spoiled.

Question 8.  
Match the substances given in column A with their uses given in column B.

|  |  |
| --- | --- |
| A | B |
| Gold | Thermometers |
| Iron | Electric wire |
| Aluminium | Wrapping food |
| Carbon | Jewellery |
| Copper | Machinery |
| Mercury | Fuel |

Answer:  
(i) (d)  
(ii) (e)  
(iii) (c)  
(iv) (f)  
(v) (b)  
(vi) (a)

Question 9.  
What happens when  
(a) Dilute sulphuric acid is poured on a copper plate?  
(b) Iron nails are placed in a copper sulphate solution?  
Write word equations of the reactions involved.  
Answer:  
(a) No reaction will take place because copper is very less reactive.  
(b) Iron being more reactive than copper will replace copper from its solution and brown coating of copper is deposited on the iron nails. Also, the blue colour turns green.  
Iron + Copper sulphate (solution) → Iron sulphate (solution) + Copper

Question 10.  
Saloni took a piece of burning charcoal and collected the gas evolved in a test tube.  
(a) How will she find the nature of the gas?  
(b) Write down the word equations of all the reactions taking place in this process.  
(a) She can find the nature of the gas by using a wet litmus paper. After bringing the litmus paper in contact with the gas, if it turns the blue litmus paper into red, it is acidic. Similarly, if it turn the red litmus into blue, it is basic.  
(b) (i) Carbon + Oxygen → Carbon dioxide  
(ii) Carbon dioxide + Lime water → Milky

Question 11.  
One day Reeta went to a jeweller’s shop with her mother. Her mother gave an old gold jewellery to the goldsmith to polish. Next day when they brought the jewellery back, they found that there was a slight loss in its weight. Can you suggest a reason for the loss in weight?  
Answer:  
The gold jewellery is dipped into an acidic solution called aqua regia (a mixture of hydrochloric acid and nitric acid) for polishing. On dipping the gold jewellery in the acid solution, the outer layer of gold dissolves and the inner shiny layer appears. This causes a slight loss in its weight.

**CHAPTER-5 FOCUS ACADEMY 9099818013 8780997670**

Question 1.  
What are the advantages of using CNG and LPG as fuels?  
Answer:  
The advantages of using CNG and LPG as fuels are:

* They burn with a smokeless flame and so does not cause any pollution.
* They leave no ash on burning.
* They are easy to handle and convenient to store.

Question 2.  
Name the petroleum product used for surfacing of roads.  
Answer:  
Bitumen

Question 3.  
Describe how coal is formed from dead vegetation. What is this process called?  
Answer:  
Millions of years ago, trees, plants, ferns and forests got buried below the rocks, soil and sand due to natural processes like flooding, earthquake, etc. Slowly, as more soil deposited over them, they were compressed. This led to the conditions of high pressure and heat. These conditions along with the anaerobic conditions turned the carbon-enriched organic matter of wood into coal.  
This slow process of conversion of wood into coal is called carbonisation.

Question 4.  
Fill in the blanks.  
(a) Fossils fuels are \_\_\_\_ , \_\_\_\_ and \_\_\_\_  
(b) Process of separation of different constituents from petroleum is called \_\_\_\_\_\_  
(c) Least polluting fuel for vehicle is \_\_\_\_\_\_  
Answer:  
(a) coal, petroleum, natural gas  
(b) refining  
(c) CNG

Question 5.  
Tick True/False against the following statements.  
(a) Fossil fuels can be made in the laboratory.  
(b) CNG is more polluting fuel than petrol.  
(c) Coke is an almost pure form of carbon.  
(d) Coal tar is a mixture of various substances.  
(e) Kerosene is not a fossil fuel.  
Answer:  
(a) False  
(b) False  
(c) True  
(d) True  
(e) False

Question 6.  
Explain why fossil fuels are exhaustible natural resources.  
Answer:  
Fossil fuels take millions of years to be formed. They are limited in nature and cannot be replenished easily, once consumed. Hence, they are considered as exhaustible natural resources.

Question 7.  
Describe the characteristics and uses of coke.  
Answer:  
Characteristics of coke: Coke is 98% pure carbon. It is a tough, porous and black substance. It pro-duces a very little smoke.  
Uses of coke: Coke is very useful as fuel. It is a good reducing agent. It is widely used in metallurgical processes to reduce metals from their oxides. It is used for producing water gas.

Question 8.  
Explain the process of the formation of petroleum.  
Answer:  
Petroleum is formed by the burial of aquatic plants and animals below the sea bed. The marine animals and plants died thousands of years ago and settled down in the bottom of sea. In anaerobic conditions, microorganisms decompose this organic matter. Due to high pressure and heat, the dead remains of tiny plants and animals were slowly converted into petroleum.

Question 9.  
The following table shows the total power shortage in India from 2004-2010. Show the data in the form of a graph. Piet shortage percentage for the years on the y-axis and the year on the x-axis.

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Year** | **Shortage (%)** |
| 1 | 2004 | 7.8 |
| 2 | 2005 | 8.6 |
| 3 | 2006 | 9.0 |
| 4 | 2007 | 9.5 |
| 5 | 2008 | 9.9 |
| 6 | 2009 | 11.2 |
| 7 | 2010 | 10.0 |

Answer:

**CHAPTER-6 FOCUS ACADEMY 9099818013 8780997670**

Question 1.  
List conditions under which combustion can take place.  
Answer:  
Combustion can take place in the presence of:  
(a) a combustible substance.  
(b) oxygen, that is, the supporter of combustion.  
(c) attainment of ignition temperature of the substance.

Question 2.  
Fill in the blanks.  
(a) Burning of wood and coal causes \_\_\_\_\_ of air.  
(b) A liquid fuel, used in homes is \_\_\_\_\_\_  
(c) Fuel must be heated to its \_\_\_\_\_\_ before it starts burning.  
(d) Fire produced by oil cannot be controlled by \_\_\_\_\_\_  
Answer:  
(a) pollution  
(b) LPG  
(c) ignition temperature  
(d) water

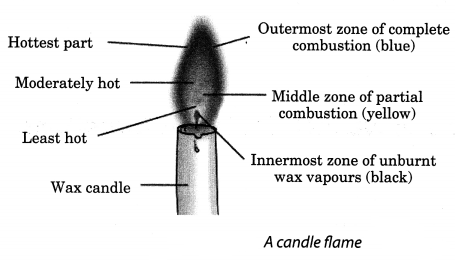
Question 3.  
Explain how the use of CNG in automobiles has reduced pollution in our cities.  
Answer:  
The use of CNG in automobiles has reduced pollution in our cities as it is a quality fuel and has some benefits:  
(a) It gives out less carbon dioxide gas, carbon monoxide gas, sulphur dioxide and nitrogen dioxide, which is beneficial as they play crucial role in global warming and acid rain.  
(b) It leaves behind no residue after its combustion.

Question 4.  
Compare LPG and wood as fuels.  
Answer:

|  |  |
| --- | --- |
| **LPG** | **Wood** |
| (i) It does not cause pollution on combustion. | (i) It pollutes air on its combustion. |
| (ii) No smoke is produced. | (ii) It produces smoke. |
| (iii) It is a liquid fuel. | (iii) It is a solid fuel. |
| (iv) It has more calorific value (55000 kJ/kg). | (iv) It has less calorific value (17000 kJ/kg). |
| (v) It can be easily transported, as it is stored in cylinders. | (v) It can’t be transported easily like LPG fuels. |

Question 5.  
Give reasons.  
(a) Water is not used to control fires involving electrical equipment.  
(b) LPG is a better domestic fuel than wood.  
(c) Paper by itself catches fire easily whereas a piece of paper wrapped around an aluminium pipe does not.  
Answer:  
(a) Since water is a good conductor of electricity, it may result in electric shocks to the person trying to extinguish fire.  
(b) LPG is better domestic fuel than wood because it does not produce gases, nor does it leave any residue behind. Moreover, it has more calorific value than wood.

(c) As its ignition temperature is low, the paper by itself catches fire easily. But a piece of paper wrapped around an aluminium pipe does not catch fire easily, as the heat being given gets absorbed by the aluminium pipe and the piece of paper does not get its ignition temperature.

Question 6.  
Make a labelled diagram of a candle flame.  
Answer:  


Question 7.  
Name the unit in which the calorific value of a fuel is expressed.  
Answer:  
The unit in which the calorific value of a fuel is expressed is kilojoules per kilogram (kJ/kg).

Question 8.  
Explain how CO2 is able to control fires.  
Answer:  
As CO2 is heavier than oxygen, it forms a blanket around fire, because of which the supply of air is stopped. Men over, it brings down the temperature of the burning substance. In these ways, it plays a significant role in controlling fire.

Question 9.  
It is difficult to burn a heap of green leaves but dry leaves catch fire easily. Explain.  
Answer:  
The green leaves hold some amount of water, so its ignition temperature gets increased and it does not burn easily. On the other hand, dry leaves are waterless, so they catch fire easily (having low ignition temperature).

Question 10.  
Which zone of a flame does a goldsmith use for melting gold and silver and why?  
Answer:  
A goldsmith uses the outermost zone of a flame, which is non-luminous, to melt gold and silver as it is the hottest zone of the flame, having more temperature.

Question 11.  
In an experiment, 4.5 kg of a fuel was completely burnt. The heat produced was measured to be 180,000 kJ. Calculate the calorific value of the fuel.  
Answer:  
Calorific value of a fuel = HeatProducedAmountoffuel  
= 1800004.5 kJ/kg  
= 40,000 kJ/kg.

Question 12.  
Can the process of rusting be called combustion? Discuss.  
Answer:  
The process of rusting emits heat during the formation of its oxide. So we can call the process of rusting as slow combustion.

Question 13.  
Abida and Ramesh were doing an experiment in which water was to be heated in a beaker. Abida kept the beaker near the wick in the yellow part of the candle flame. Ramesh kept the beaker in the outermost part of the flame. Whose water will get heated in a shorter time?  
Answer:  
The water which was put by Ramesh will get heated in a shorter time; because he had put it nearer to the hottest zone of the flame.