DAILY PRACTICE PROBLEM

Air Around Us DPP-01

Multiple choice questions

1. How can we feel the presence of air?
(1) When the leaves of trees rustle
(2) When branches sway in the wind
(3) When the clothes hanging on a clothesline swing
(4) All of these

2. Select the instrument that is used to check the direction of wind.
(1) Weather cock (2) Hygrometer
(3) Barometer (4) Stethoscope

3. Air moves with great speed during
(1) Drought (2) Cyclones
(3) Volcanic eruption (4) Floods

4. Which of the following gases is the component of air?
(1) Argon (2) Oxygen
(3) Nitrogen (4) All of the above

5. Air is useful for
(1) Plants (2) Animals
(3) Human being (4) All of these

Match the column

6.

Column I	Column II
(A) Wind cock	(i) gases and dust particles
(B) Mountaineers	(ii) carry oxygen cylinders
(C) Wind	(iii) direction of wind
(D) Smoke	(iv) moving air

True or False

7. Air is matter.

8. Open area allows air to move here and there.

9. The amount of water vapour present in air is same at all the times and all the places.

Fill in the blanks

10. Air can only be _____ but cannot be_____.

11. _____ is the amount of water vapour in the air at any place and time.

Subjective Questions

12. Why does a balloon increase in size when we blow air in it?

13. What is wind?

14. Why is air considered to be a mixture?

15. Why air is called matter?

SOLUTIONS DPP-01

Answer Key

Question	1	2	3	4	5
Answer	**4**	**1**	**2**	**4**	**4**

1. **Option (4)**
Presence of air can be felt when leaves of the trees rustle, the branches sway in the wind and the clothes hanging on a clothesline swing.

2. **Option (1)**
Weather cock is used to check the direction of wind.

3. **Option (2)**
Air moves with great speed during cyclones.

4. **Option (4)**
Air contains argon, oxygen and nitrogen and also other gases like hydrogen, carbon dioxide, helium etc.

5. **Option (4)**
Air is useful for plants, animals and human beings.

6. **A-iii, B-ii, C-iv, D-i**
Wind cock is used to detect the direction of wind, mountaineers carry oxygen cylinders with them on mountains due to low availability of oxygen at high altitudes, moving air is called wind, smoke is mixture of gases and dust particles.

7. **True**
Air is considered as matter as it has mass and occupies space.

8. **True**
Open area allows air to move here and there.

9. **False**
The amount of water vapour present in air differs at times and from place to place.

10. **Felt, seen**
Air can only be felt but cannot be seen.

11. **Humidity**
Humidity is the amount of water vapour in air at any place and time.

12. Since air occupies space, when we blow air in the empty balloon, the air occupies space inside the balloon, so the balloon increases in size according to the amount of air blown.

13. Moving air is called wind.

14. Air is composed of various gases mixed in variable quantity. All the gases retain their properties, so it is called as a mixture.

15. Air is called matter because it occupies space and has mass.

DAILY PRACTICE PROBLEM

Air Around Us DPP-02

Multiple choice questions

1. Which is not a property of air?

(1) It occupies space (2) It is transparent

(3) It is a solution (4) It is a compound

2. ____ device is used to measure atmospheric pressure.

(1) Weather cock (2) Barometer

(3) Speedometer (4) Windmill

3. The traffic police need face masks to-

(1) Cover the face (2) Stop dust particles present in air

(3) For breathing (4) None of these

4. If we sit in front of a moving table fan with few pieces of paper, they blow away. It shows-

(1) That air has mass (2) The presence of air

(3) Air contains dust particles (4) Air is colourless

5. Formation of bubble in boiling water shows that-

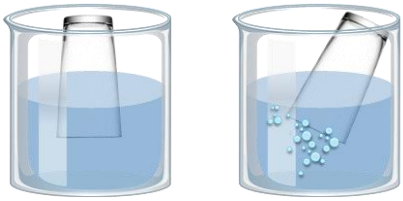
(1) Air occupies space (2) Water contains dissolved air

(3) Air is everywhere (4) Air is a mixture

Diagram based question

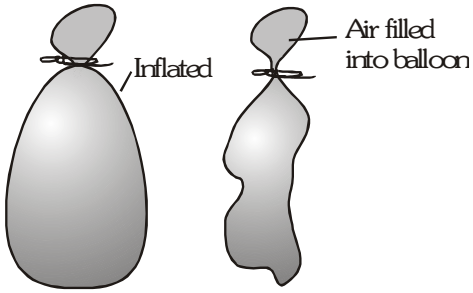
6. Identify the property of air which is shown in each of the diagram given below.

(i)



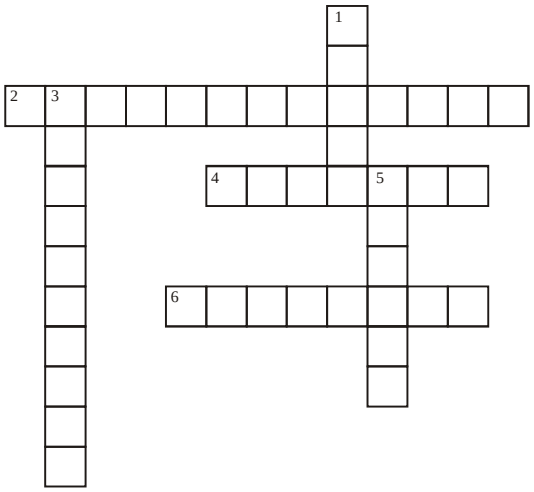
(ii)

(iii)



Crossword puzzle

7.



Across

2. A gas that extinguishes fire.
4. Air is found in ____ state.
6. A gas is needed by plants to make proteins.

Down

1. It is produced by burning fuels.
3. Envelope of air around the earth.
5. A gas which dissolves in freshwater and supports respiration of marine animals.

Fill in the blanks

8. Air has _____ taste.

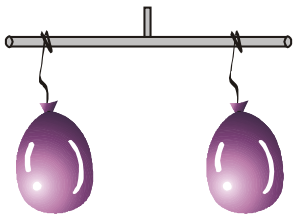
9. Air is_____ compressible in nature.

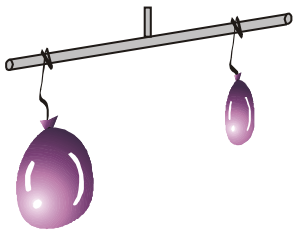
10. Air exerts _____ in all directions.

11. We cannot see air as it is _____ and _____.

Short answer type question

12. A teacher took two balloons of the same size and filled both of them with air. She made a simple balance with the help of a thread tied at the middle of a stick. She then tied the balloons on either side in such a manner that it remained horizontal indicating both the balloons had equal weight. Next, she punctured one of the balloons. The air went out and the side with the punctured balloon went up. What can you conclude from this activity?





Subjective Questions

13. Why air is highly compressible in nature?

14. How will you show that air dissolves in water?

15. Why does a lump of cotton wool shrink in water?

SOLUTIONS DPP-02

Answer Key

Question	1	2	3	4	5
Answer	**4**	**2**	**2**	**2**	**2**

1. **Option (4)**
Air is a homogeneous mixture of different gases.

2. **Option (2)**
Barometer device is used to measure atmospheric pressure.

3. **Option (2)**
The traffic police need face masks to stop dust particles present in air.

4. **Option (2)**
This activity shows that the presence of air.

5. **Option (2)**
This activity shows that water contains dissolved air.

6. (i) Air occupies space as from the picture we can see the bubbles formed in water due to presence of air in empty glass bottle.
(ii) Air can move from one place to another i.e. air has the property to flow.
(iii) Air occupies space, as well as air exert pressure that's why the empty balloon gets expanded when air is blown into it.

7.

Across	**Down**
2. carbon dioxide	1. smoke
4. gaseous	3. atmosphere
6. nitrogen	5. oxygen

8. **No**
Air has no taste, it is tasteless.

9. **Highly**
Air is a gas; gases are highly compressible in nature.

10. **Pressure**
Air exerts pressure in all directions.

11. **Colourless and transparent**
We cannot see air as it is colourless and transparent.

12. Since air has mass, the balloon with air filled in it would go down and punctured balloon would go up due to no air in it i.e., no mass in it.

13. Air is a mixture of gases, gases have high interparticle spaces between them. These spaces can be reduced by applying pressure on gases. When pressure is applied, particles of gases can be brought together and in close contact with each other and gases are compressed.

14. Air is soluble in water. Water molecules have some interparticle spaces between them which are filled by air particles. Air is dissolved in water can be proven by – take some water in a pan and heat it. Just before the water begins to boil, we will notice some bubbles at the inner surface of the pan. These bubbles come from the air dissolved in water. This shows that air is dissolved in water.

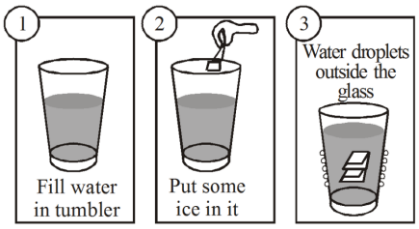
15. Cotton has many tiny pores and spaces inside it. These spaces are filled with air. When the cotton wool is placed in water, air is replaced by water molecules. After absorbing water molecules, cotton wool becomes heavier and thus, the lump of cotton wool sinks in water.

DAILY PRACTICE PROBLEM

Air Around Us DPP-03

Multiple choice questions

1. The given experiment is performed to show that _____.



(1) Air occupies space.

(2) Dust particles are present in water.

(3) Air has water vapour.

(4) Water has mass.

2. Which of the following processes cannot take place in the absence of oxygen?

(1) Combustion (2) Respiration

(3) Photosynthesis (4) Both (1) and (2)

3. Which of following phenomena shows use of oxygen?

(1) Photosynthesis (2) To extinguish fire

(3) Respiration (4) Storing of carbon in tissues

4. Percentage of oxygen and carbon dioxide in the air is respectively

(1) 21% and 0.03% (2) 28% and 21%

(3) 28% and 0.03% (4) 21% and 1%

5. The water vapour in air is due to

(1) Evaporation of water from oceans, rivers, lakes and streams

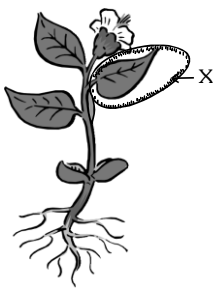
(2) Release by plants through their leaves during transpiration

(3) Release by animals when their sweat evaporates costmor

(4) All of the above

Diagram based Question

6. A plastic bag was tied to a part of the plant as shown. After a day, a substance X is found inside the plastic bag. What is X?



Match the column

7.

Column-I		Column-II	
(A)	Air	(p)	Air can holds water vapour
(B)	Clothes get dry	(q)	78%
(C)	Face mask	(r)	1%
(D)	Nitrogen	(s)	Occupies space
(E)	Carbon dioxide, water vapour and other gases	(t)	To stop the dust particles

True or False

8. Air cannot hold water vapour.

Fill in the blanks

9. Air contains oxygen gas for _____ and _____ gas for photosynthesis.

10. Air is a _____ of different gases.

Subjective Questions

11. Explain the composition of air.

12. How will you prove that air supports burning?

13. Which gas present in air is an important component of fertilizers?

14. How atmosphere helps to maintain the right temperature of the earth?

15. Which component of atmosphere cannot be absorbed by plant directly?

SOLUTIONS DPP-03

Answer Key

Question	1	2	3	4	5
Answer	**3**	**4**	**3**	**1**	**4**

1. **Option (3)**

Water vapour present in air get condenses to water droplets, when it comes in contact with cold glass.

2. **Option (4)**

Oxygen is essential for respiration, and it is also supporter of combustion.

3. **Option (3)**

Oxygen is essential for respiration.

4. **Option (1)**

Air contains 21% oxygen and 0.03% carbon dioxide.

5. **Option (4)**

The water vapour in air is due to evaporation of water from oceans, rivers, lakes and streams, release by plants through their leaves during transpiration, release by animals when their sweat evaporates.

6. X is water vapour. Water vapour can be seen on the inner surface of plastic bag due to transpiration from leaf of plant. Transpiration process release water vapour in air**.**

7. **A-s, B-p, C-t, D-q, E-r**

Air occupies space, clothes get dry as air can absorb water vapour, face mask stops dust particles from entering into the nostrils, air contains 78% nitrogen, 1% carbon dioxide and water vapour.

8. **False**

Air has the property of holding water vapour.

9. **respiration, carbon dioxide**

Air contains oxygen gas for respiration and carbon dioxide gas for photosynthesis by plants.

10. **mixture**

Air is a mixture of different gases.

11. Air consists of 78% nitrogen, 21% oxygen and 1% carbon dioxide, other gases and water vapour.

12. Cover the burning candle with a glass jar. After a few minutes the candle is extinguished due to air supply has stopped. This shows that air supports burning.

13. Nitrogen present in air is an important component of fertilisers. Fertilisers are important for soil fertility and proper crop yields.

14. Atmosphere is a layer of different gases around the earth. The heat and light of the sun fall on the earth's atmosphere. Some of it is absorbed by the atmosphere while the rest is reflected back. This prevents the earth from becoming very hot during the day. At night, the trapped heat in the atmosphere prevents the earth from cooling down too much. Thus, the atmosphere acts like a blanket around the earth and helps to keep the earth's surface at right temperature for life to exist.

15. Plants cannot utilise the atmospheric nitrogen directly. Free nitrogen in the atmosphere is converted into ammonia by nitrogen-fixing bacteria and this ammonia is utilised by the plants as fertilisers for proper growth.

DAILY PRACTICE PROBLEM

Air Around Us DPP-04

Multiple choice questions

1. Which of the following activities does not require the presence of air?

(1) Paragliding (2) Kite flying (3) Inflating a tyre (4) Reading

2. Earthworm takes in air through their

(1) Nose (2) Mouth (3) Skin (4) Stomata

3. Fish derive oxygen from

(1) Water present in soil (2) Air dissolved in water

(3) Air present in soil (4) Other aquatic animals

4. Air is used to play many musical instruments such as

(1) Mouth organ and trumpet (2) Harmonium and flute

(3) Mouth organ and flute (4) All of these

5. Humans are not dependent on plants for

(1) Fuel (2) Oxygen (3) Food (4) Carbon dioxide

True or False

6. Blowing air helps in dispersal of seeds.

7. Organisms living under soil are always capable of respiring without oxygen.

8. Dolphins and whales regularly come to the surface of water bodies to breathe.

Fill in the blanks

9. ____ air is used in tyres of vehicles.

10. Air helps in the _____ of seeds and _____ of flowers.

Subjective Questions

11. List any 5 uses of air in your life.

12. How air plays an important role in water cycle?

13. Differentiate between breathing and respiration.

14. How air helps in separating grains from chaff?

15. Why do scuba divers carry oxygen cylinders with them while diving in the sea?

SOLUTIONS DPP-04

Answer Key

Question	1	2	3	4	5
Answer	**4**	**3**	**2**	**4**	**4**

1. **Option (4)**

Reading does not require presence of air.

2. **Option (3)**

Earthworm takes in air through their skin surface. The skin is kept moist with the help of a substance called mucous.

3. **Option (2)**

Fishes derive oxygen from air dissolved in water.

4. **Option (4)**

Air is used in playing mouth organ, flute, trumpet and harmonium.

5. **Option (4)**

Humans release carbon dioxide while breathing, so are not dependent on plants for it.

6. **True**

Blowing air helps in dispersal of seeds.

7. **False**

Organisms living in soil also require air for breathing. They absorb air from the air present in soil.

8. **True**

Dolphins and whales are also mammals and they require oxygen for breathing. They do not have gills, they have lungs like humans, so they come at surface of water for breathing.

9. **compressed**

Compressed air is filled in tyres of vehicles.

10. **dispersal, pollination**

Air helps in seed dispersal and pollination of flowers.

11. (i) In filling balloons in birthday parties

(ii) In burning of candle

(iii) In drying of clothes

(iv) For breathing

(v) For drying of sweat in summers.

12. Air is required for holding water vapour in atmosphere which in turn form clouds.

Clouds are generally formed over water bodies, air is required for movement of clouds from water bodies to land areas.

13. Breathing is inhaling oxygen and exhaling carbon dioxide whereas respiration is a chemical process in which breakdown of glucose takes place to produce energy.

14. Grains and chaff are separated using the process of winnowing. In winnowing, mixture of grains and chaff is allowed to fall from height in the presence of blowing air. Air carries away lighter chaff with it and the heavier grains fall down on the surface due to gravity. In this way air separates chaff from grains.

15. Sea divers carry oxygen cylinders along with them because there is no free oxygen in the sea water. The little dissolved oxygen present in water cannot be used by the divers for breathing. It can only be used by aquatic organisms.

DAILY PRACTICE PROBLEM

Air Around Us DPP-05

Multiple choice questions

1. The person who recognized oxygen as the gas responsible for combustion.

(1) John Dalton (2) Albert Einstein

(3) Antoine Lavoisier (4) None of these

2. Which of the following gases release in respiration?

(1) Nitrogen (2) Argon

(3) Carbon dioxide (4) Oxygen

3. Select the correct option regarding oxygen gas

(1) It constitutes 31% of air (2) It turns lime water milky

(3) It is used to extinguish fire (4) It supports combustion

4. Read the following statements.

(i) I am present in air.

(ii) I enter your lungs when you breathe in.

(iii) Your body needs me to produce energy.

Which of the following gases is being described by the above statements?

(1) Carbon dioxide (2) Nitrogen (3) Hydrogen (4) Oxygen

5. Aquatic animals and plants-

(1) Breathe through the water

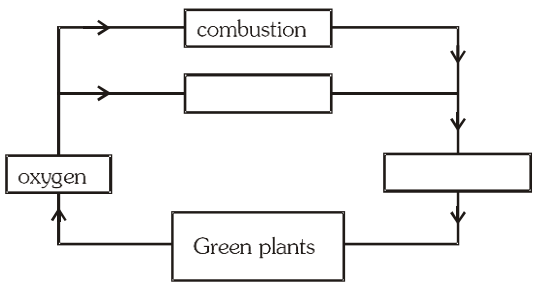
(2) Have to come out of water to breathe

(3) Use the oxygen dissolved in water to breathe

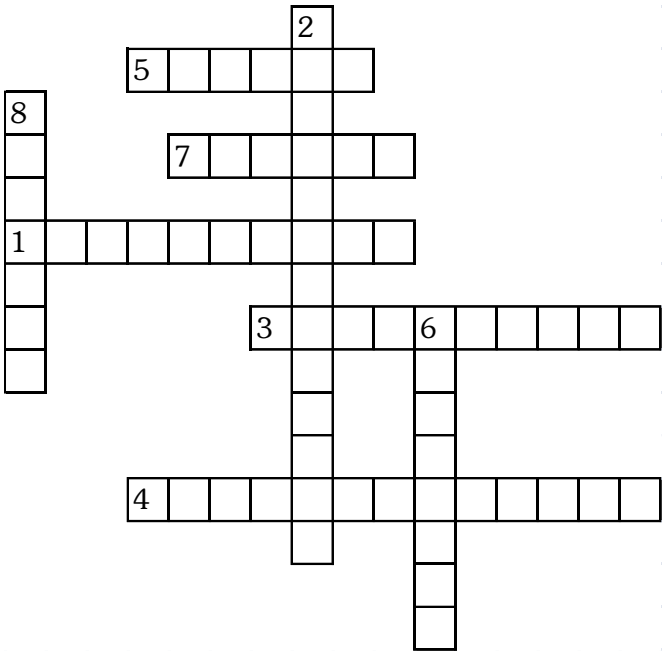
(4) Do not breathe at all

Diagram based Question

6. Oxygen is required by human beings, animals and plants for breathing. Fill in the empty boxes given here to show the oxygen cycle.



7. **Crossword puzzle**



Across

1. Air is invisible because all gases present in air are ____.

3. Layer of air around the earth is known as ____.

4. Product of respiration _____.

5. Supporter of combustion _____.

7. Earthworm's skin is kept moist with the help of ____.

Down

2. Planting of more and more trees is known as ____.

6. Necessary condition for photosynthesis process ____.

8. Product of photosynthesis _____.

Match the Column

8.

Column-I		**Column-II**	
(A)	Air	(i)	Thin layer of air surrounding our earth
(B)	Wind	(ii)	Released in respiration
(C)	Atmosphere	(iii)	Makes three fourth part of total air
(D)	Oxygen	(iv)	Is process of burning of food to get energy
(E)	Carbon dioxide	(v)	Uses wind power to rotate.
(F)	Nitrogen	(vi)	Process of preparation of food by green plants
(G)	Respiration	(vii)	Allow air to move here and there
(H)	Photosynthesis	(viii)	Is a gaseous mixture
(I)	Wind mill	(ix)	Supports combustion
(J)	Open areas	(x)	Is air in motion

True or False

9. The amount of water vapour in air is high in coastal regions.

Fill in the blanks

10. _____ gas is essential for respiration.

Subjective Questions

11. There are two jars A and B. One is full of oxygen and the other has nitrogen. Both gases are colourless and odourless. How will you show which jar contains oxygen gas?

12. Which gas is useful in protein formation for plants?

13. Why is air able to sustain life?

14. How oxygen is available to the animals in water and soil?

15. How do plants and animals help each other in the exchange of gases in the atmosphere?

SOLUTIONS DPP-05

Answer Key

Question	1	2	3	4	5
Answer	**3**	**3**	**4**	**4**	**3**

1. **Option (3)**

Antoine Lavoisier was the person who recognised oxygen as the gas responsible for combustion.

2. **Option (3)**

In respiration carbon dioxide is released.

3. **Option (4)**

Oxygen supports combustion.

4. **Option (4)**

Oxygen gas enters our body through lungs when we breathe and it is required to produce energy through respiration.

5. **Option (3)**

Aquatic animals and plants breathe through oxygen dissolved in water.

6. Oxygen is required mainly for combustion and respiration. In both of these processes, carbon dioxide is released which is absorbed by plants for photosynthesis to produce oxygen as a by-product.

7.

Across	**Down**
1. colourless	2. reforestation
3. atmosphere	6. sunlight
4. carbon dioxide	8. glucose
5. oxygen	
7. mucous	

8. **A-viii; B-x; C-i; D-ix; E-ii; F-iii; G-iv; H-vi; I-v; J-vii**

Air is a gaseous mixture, wind is air in motion, atmosphere is thin layer of air surrounding earth, oxygen supports combustion, carbon dioxide is released in respiration, nitrogen makes three fourth of the total air, respiration is process of burning of food to get energy, photosynthesis is process of preparation of food by green plants, wind mill uses wind power to rotate, open areas allow air to move here and there.

9. **True**

Coastal areas contain high amount of water vapour in air.

10. **Oxygen**

Oxygen gas is essential for respiration.

11. Bring a burning candle near to the two jars, the jar which contains oxygen will support burning of candle and the jar filled with nitrogen does not support burning of candle for long.

12. Nitrogen gas is essential for protein formation in plants.

13. Air supports life as air is essential for breathing and to respire, carbon dioxide is necessary for plants to photosynthesize, oxygen is necessary to respire. Atmosphere also helps to keep the earth warm by trapping solar energy, it also protects life from harmful UV radiations from sun.

14. Oxygen is available in dissolved form in water to aquatic plants and animals. Soil contains a lot of air spaces inside it where the air is present. Organisms living in soil respire through this air present in soil.

15. Animals respire by taking oxygen which is produced by plants by photosynthesis process. Animals exhale carbon dioxide which is required by plants to produce food. In this way plants and animals help each other by providing oxygen and carbon dioxide to each other and maintain a balance of air in the atmosphere.

DAILY PRACTICE PROBLEM

Air Around Us DPP-06

Multiple choice questions

1. Which of the following factor cause(s) air pollution?
(1) Deforestation (2) Combustion of fuel
(3) Industrialisation (4) All of these

2. Which of the following gases protects us from ultraviolet rays?
(1) Oxygen (2) Ozone
(3) Carbon dioxide (4) Nitrogen

3. Which gas is the major pollutant of air?
(1) Carbon dioxide (2) Carbon monoxide
(3) Oxygen (4) Nitrogen

4. Which out of the following gases is used by plants and animals to synthesize proteins in their bodies?
(1) Oxygen (2) Carbon dioxide
(3) Nitrogen (4) Argon

5. Which gas is present in excess in your room if you are feeling suffocated?
(1) Oxygen (2) Water vapour
(3) Nitrogen (4) Carbon dioxide

True or False

6. Reforestation is a controlling method for air pollution.

7. Acid rain is the effect of water pollutants.

Fill in the blank

8. ____ of fuel causes air pollution.

Integer type question

9. How many of the following are happened due to air pollution?
Thinning of ozone layer, increase in the number of asthmatic patients, Global warming, Increase in population.

Subjective Questions

10. Define pollutants.

11. What is the role of long chimneys in the factories?

12. Why do policemen regulating traffic at a crowded crossing often wear a mask?

13. Carbon dioxide gas is present in very small amount in our atmosphere then why it is considered to be so important?

14. Write some factors which cause air pollution.

15. Write any two controlling methods for air pollution.

SOLUTIONS DPP-06

Answer Key

Question	1	2	3	4	5
Answer	**4**	**2**	**2**	**3**	**4**

1. **Option (4)**

Deforestation, combustion of fuel and industrialisation leads to pollution of air.

2. **Option (2)**

Ozone protects us from ultraviolet rays.

3. **Option (2)**

Carbon monoxide gas is the major pollutant of air.

4. **Option (3)**

Nitrogen is essential component of amino acids and proteins, it is used by plants and animals to synthesize proteins in their body.

5. **Option (4)**

Carbon dioxide present in excess in a closed room will produce suffocation.

6. **True**

Reforestation is planting of trees, trees control air pollution by absorbing excess carbon dioxide and providing oxygen thus maintaining balance of these two gases.

7. **False**

Acid rain is the effect of air pollutants like CO_2, SO_2, NO_2.

8. **Combustion**

Burning of fuels causes air pollution.

9. **3**

Thinning of ozone layer, increase in number of asthmatic patients, global warming

10. Pollutant is a substance which contaminates or spoils or harms water, air or land quality. Eg: dust particles, smoke, toxic gases are air pollutants; harmful liquid chemicals are water pollutants; non- biodegradable plastic waste, metals are land pollutants.

11. A lot of air pollution happens in factories due to burning of fuels. Factories contain long chimneys so as to dispose the polluted air high up in the atmosphere so living organisms are not affected by the air in lower atmosphere.

12. Policemen at a crowded crossing often wear a mask to prevent themselves from harmful gases and smoke accumulated due to high traffic at a place. Face mask filters the dust particles from air which prevents the policemen from inhaling dust particles.

13. Carbon dioxide gas is important for plants to prepare their food through photosynthesis. Plants in turn are important for atmosphere as they release oxygen in atmosphere. Carbon dioxide is also relevant for extinguishing forest fires and has many other uses too.

14. Factors causing air pollution:

(i) Smoke emission from exhaust of vehicles.

(ii) Harmful gases emission from chimneys of factories.

(iii) Forest fires

(iv) Open burning of garbage

(v) Use of air conditioners pollute air by releasing CFC's in atmosphere.

(vi) Construction and metallurgical activities.

15. (i) Using energy efficient vehicles like electric vehicles, cycles to avoid air pollution through smoke.

(ii) Use of energy efficient fuels like CNG, LPG instead of traditional fuels like coal or wood for domestic purposes.