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CHAPTER 1

CONCERN ABOUT OUR ENVIRONMENT

e-Book

CONTENTS

- NOTES
- MCQ
- 1 MARKS QUESTIONS
- 2 MARKS QUESTIONS
- PREVIOUS YEAR SOLVE

C O N T E N T S

CONCERN ABOUT OUR ENVIRONMENT

1

- LAYERS OF ATMOSPHERE
- OZONE LAYER

2

- GREENHOUSE GAS
- GLOBAL WARMING

3

- RATIONAL USE OF ENERGY

CONCERN ABOUT OUR ENVIRONMENT

THEME	GROUP A	GROUP B	GROUP C	GROUP D	TOTAL
CONCERN ABOUT OUR ENVIRONMENT	1 X 1 = 1	1 X 2 = 2	2 X 1 = 2	---	5

• LAYERS OF ATMOSPHERE

The atmosphere has five different layers that are determined by the changes in temperature that happens with increasing altitude.

1. Troposphere:

- ❑ Living at the surface of the earth, we are usually only aware of the events happening in the lowest layer, the troposphere.
- ❑ It contains most of our weather clouds, rain, and snow.
- ❑ In this part of the atmosphere, the temperature gets colder as the distance from the earth's surface increases.
- ❑ The top of the troposphere is called the tropopause.
- ❑ This is lowest at the poles, about 5 km above the earth's surface.
- ❑ It is the highest (about 16 km) near the equator.

2. Stratosphere:

- ❑ This extends upwards from the tropopause to about 50 km
- ❑ where jet aircraft fly.
- ❑ It contains much of the ozone in the atmosphere.
- ❑ The increase in temperature with height occurs because of the absorption of ultraviolet (UV) radiation from the sun by this ozone.

• LAYERS OF ATMOSPHERE

3. Mesosphere:

- ❑ The region above the stratosphere is called the mesosphere.
- ❑ Here the temperature again decreases with height,
- ❑ reaching a minimum of about 90°C at the "mesopause".

4. Thermosphere and ionosphere:

- ❑ The thermosphere lies above the mesopause
- ❑ and is a region in which temperature again increases with height.
- ❑ The absorption of energetic ultraviolet and Xray radiation from the sun causes this temperature increase.
- ❑ Thermosphere also includes the region called the ionosphere.
- ❑ It is a region of the atmosphere that is filled with charged particles.
- ❑ The high temperature in the thermosphere can cause molecules to ionize.
- ❑ The temperature in the ionosphere keeps getting hotter as you go up.

5. Exosphere:

- ❑ The region above about 500 km is called the exosphere.
- ❑ It contains mainly oxygen and hydrogen atoms. This is the region where atoms and molecules escape into space.

• OZONE LAYER

Causes of ozone depletion:

Chlorofluorocarbons (CFC) are commonly used as coolants in refrigerators and air conditioners, in blowing plastic foams, and in spray cans. But during the last decade, these were found to be responsible for ozone depletion in the stratosphere. It has been established that one molecule of CFC can destroy one lakh O3 molecules in the stratosphere.

The extreme chemical stability and nontoxicity of CFCs enable them to persist for years in the atmosphere. In the stratosphere, CFCs are subjected to photochemical dissociation by intense UV radiation which results in the generation of Cl radicals. One Cl radical can destroy one lakh O3 molecules.

• OZONE LAYER

Harmful effects of ozone depletion:

1. Human Health: UV radiations are sufficiently energetic to break apart important biological molecules.
(a) Skin: Exposure to UV radiation causes the connective tissue of the skin to be damaged. Thus skin becomes wrinkled and loses its elasticity. If the exposure continues, the skin becomes coarsely furrowed and lumpy. Besides, it has been estimated that a 1% decline in the ozone layer could lead to a 46% increase in the probability of skin cancer.
(b) Eyes: UV radiation can damage the lens of the eye. Cataracts, even blindness can result.
2. Leaves of the plant will be discolored as photosynthesis will be affected.
3. Marine organisms will be destroyed.
4. Agricultural productivity will be reduced.

2

• GREENHOUSE GAS

The main sources of greenhouse gases due to human activities are:

1. A number of factories all over the world burn immense quantities of coal, oil, and natural gases and produce a huge quantity of carbon dioxide.
2. Power stations based on fossil fuels are major sources of manmade carbon dioxide.
3. A large fleet of automobiles, railways, aircraft, etc. use an immense quantity of diesel and petrol releasing a huge amount of carbon dioxide every year.
4. Burning of firewood and deforestation are the major source of or the production of carbon Greenhouse effect and global warming
5. Burning of firewood and deforestation are the major sources for the production of carbon dioxide.
6. Chlorofluorocarbons are released from coolants.

2

• GREENHOUSE GAS

Consequences of the greenhouse effect:

Climatic Changes:

1. Due to global warming, the oceans get warmer and sea levels rise, flooding low lying regions.
2. In temperate regions, the winter will be shorter and warmer but the summer will be longer and hotter.
3. There will be an enormous increase in rainfall but the problems of desertification, drought, and soil erosion will further worsen.
4. The tropics may become wetter but the subtropics, which are already dry, are expected to be drier.

Other Changes :

1. Melting of icecaps will be found over polar regions.
2. Due to the greenhouse effect and much warmer tropical oceans, there may occur more cyclones, and hurricanes and snow melting mountains will cause more floods during monsoons.
3. A rise in atmospheric temperature will increase the evaporation of seawater increasing the humidity.

2 • GREENHOUSE GAS

Measures to control the greenhouse effect:

1. To reduce the consumption of fossil fuels such as coal and petroleum.
2. To depend more on nonconventional renewable sources of energy such as wind, solar, biogas, etc.
3. There should be a restriction on the emission of CO2 and CFCs from factories and automobiles.

2

• GLOBAL WARMING

Global warming :

It has been observed that in the last few centuries, the average temperature of the earth is gradually increasing. For example, during the period from 1800 – 1900 AD, the average increase of the earth's temperature was found to be 0-4°C and during the period 1900 - 2000.AD this increase in temperature is 1°C. So it cannot be denied that the natural environment is gradually becoming warmer.

The phenomenon of the gradual increase of temper all over the world is called global warming.

3 • RATIONAL USE OF ENERGY

The calorific value of fuel: The energy contained in fuel or food is determined by measuring the heat produced by the complete combustion of a specified quantity of it.
The amount of heat released by a unit weight or unit volume of fuel during its complete combustion is called its calorific value.

Unit: It is generally expressed in joules per kilogram (J/kg).

Conservation of resources:
Conservation refers to reducing the rate at which resources are used. Conservation is one of the biological principles of sustainability.
A concept of conservation plans to achieve a balance between production and protection and is against any unplanned development that flouts ecological principles.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

3 • TYPES OF ENERGY SOURCE

RENEWABLE AND NON-RENEWABLE ENERGY SOURCE:

NON-RENEWABLE ENERGY SOURCE:

RENEWABLE ENERGY SOURCE:

3 • RATIONAL USE OF ENERGY

Alternative sources of energy:

1. Solar Energy
2. Wind Power
3. Tidal Energy
4. Geothermal
5. Bio Energy and Biogas
6. Electricity from waste
7. Coalbed Methane

• RATIONAL USE OF ENERGY

Alternative sources of energy:
Solar Energy

The advantages of solar energy are :

1. It is inexhaustible and renewable, and it is being produced continuously in the core of the sun by nuclear fusion of hydrogen atoms.
2. It does not cause environmental pollution.
3. it can be put to practical application.
4. it is cheap unlimited and easily available.

The disadvantages of solar energy are :

1. It is available only during the daytime,
2. It is not available in cloudy weather.

3 • RATIONAL USE OF ENERGY

Alternative sources of energy:
Wind Power

The advantages of wind energy are :

1. It is available free of cost.
2. The source of energy inexhaustible and renewable source
3. It generates a pollution free energy.

The disadvantages of wind energy are :

1. Wind energy forms can be established only at those places where wind blows for large duration of the year.
2. Wind is not predictable. Therefore, strong steady with uniform velocity cannot be guaranteed at a place.
3. Wind energy establishment requires a large area to set up a series of windmills resulting in huge capital investment at the initial stage.

• RATIONAL USE OF ENERGY

Alternative sources of energy:
Tidal Power

Advantages:

1. Other forms of renewable energy, such as wind and solar energy are dependent on random weather patterns. But tidal energy is based on the rise and fall of tides, which is more uniform and reliable.
2. It does not release greenhouse gases or other pollutants into the air.

Disadvantages:

1. Tidal energy development is hampered by high upfront costs. There are also limited suitable locations for tidal energy.
2. The energy which is obtained from the strong currents of water produced by the rise and the fall of sea level due to tidal action is called tidal energy.

• RATIONAL USE OF ENERGY

Alternative sources of energy:
Geothermal Energy

The advantages of geothermal energy are :

1. It is free of cost
2. It is more or less a pollution free source of energy.
3. Geothermal power plants can operate around the clock
4. Though the initial cost of setting up of a plant is high but the operating cost involved is less.

The disadvantages of geothermal energy are :

1. Hotspots are available in only some limited places. Thus this is not likely to be a major source of energy.
2. Associated emissions of H2S and highly mineralized effluent from natural can cause pollution of streams of groundwater.

• RATIONAL USE OF ENERGY

Alternative sources of energy:

Biomass Energy and Biogas

The advantages are :

1. Since this energy is derived from biomass it is renewable involves less cost and easily available in nature.
2. It reduces dependency on fossil fuels.
3. It helps reduce waste . for instance, the dead leaves grass and key parts can be burned to produce energy.
4. It can be used in many forms from various kind of organic matter. for instance, biomass can be used to create biodiesel, biofuels and methane gas.

The disadvantages are :

1. Biomass energy relies heavily on natural materials. Therefore, large scale production of energy can be lead to accelerated deforestation.
2. It is not completely efficient. For example, ethanol is considered to be inefficient compared to gasoline.
3. It requires certain crops to be planted in the lands that might have been utilized for food crops.

• RATIONAL USE OF ENERGY

Alternative sources of energy:

Coalbed methane (CBM): Coalbed methane **(CBM),** coalbed gas, and coalmine methane **(CMM)** are the forms of natural gas that are stored ("'adsorbed") in deeply buried coal seams. In recent decades it has become an important source of energy. CBM is generated either from a biological process as a result of microbial action or from a thermal process as a result of increasing heat with the depth of the coal.

Methane hydrates: Methane hydrates are white, icelike solids inside of which are trapped molecules of methane. Here the methane molecules are enclosed in microscopic cages composed of water molecules. If methane hydrate is either warmed or depressurized, it will revert back to water and natural gas. When brought to the earth's surface, one cubic meter of gas hydrate releases 164 cubic meters of natural gas.

MCQ

1. Whose value is equal to 290K? (Board Sample Paper)

(a) 30°C

(c) 0°C

(b) 17°C

(d) 27°C

Ans. (b) 17°C

2. Which of the following does not deplete the ozone layer? (Board Sample Paper)

(a) NO

(b) N_2O

(d) CFC

(c) CO_2

The gas that does not deplete the ozone layer among the given options is CO2 (carbon dioxide). Carbon dioxide is a greenhouse gas, but it does not react with ozone or contribute to the depletion of the ozone layer. However, other gases such as CFCs (chlorofluorocarbons) and NO (nitric oxide) can react with ozone and contribute to its depletion. N_2O (nitrous oxide) is also an ozone-depleting substance.

Ans. (c) CO_2

3. The layer of the atmosphere closest to the earth is:

(a) Ionosphere

(b) Troposphere

(c) Stratosphere

(d) Ozone sphere

Ans. (b) Troposphere.

5. The atmospheric layer situated above the earth's surface in which natural phenomena like rain, thunderclap, storm, etc. occur.

(a) Ozone sphere

(b) Troposphere

(c) Stratosphere

(d) ionosphere

Ans. (b) Troposphere.

6. Generally, the temperature decreases for every 165 m above the surface of the earth.

(a) 1°C

(b) 2°C

(c) 3°C

(d) 4°C

> Lapse Rate: The lapse rate is the rate at which an atmospheric variable, normally temperature in Earth's atmosphere, falls with altitude. It is considered positive when the temperature decreases with elevation, zero when the temperature is constant with elevation, and negative when the temperature increases with elevation (temperature inversion).

Ans. (a) 1°C

7. In which level of the atmosphere do jet aircraft fly?

(a) Troposphere

(b) Stratosphere

(c) Ionosphere

(d) exosphere

Ans. **(b)** Stratosphere

8. In which layer radio waves are broadcast?

(a) Ionosphere

(b) stratosphere

(c) Troposphere

(d) exosphere

Ans. (a) Ionosphere.

9. Which fuel has the greatest calorific value?

(a) coal

(b) petrol

(c) Biogas

(d) LPG

Ans. (d) LPG

10. What is the symbol of Ozone.

(a) O_2

(b) O

(c) O_3

(d) O_4

Ans. (c) O_3

11. Which of the following is not fossil fuel?

(a) Petrol

(b) Diesel

(c) solar energy

(d) coal

Ans. (c) Solar energy.

12. Which of the following is not a greenhouse gas?

(a) oxygen

(b) carbon dioxide

(c) Chlorofluorocarbon (CFC)

(d) methane

Ans. (a) Oxygen.

13. The ozone layer is found in which of the following atmospheric layer?

(a) ionosphere

(b) Stratosphere

(c) Troposphere

(d) Exosphere

Ans. (b) Stratosphere

14. Which layer of the atmosphere has the lowest temperature?

(a) Troposphere

(b) ionosphere

(c) stratosphere

(d) Exosphere

Ans. (c) stratosphere

15. Which layer of the atmosphere has the highest temperature?

(a) Troposphere

(b) thermosphere

(c) Exosphere

(d) ionosphere

Ans. (b) thermosphere

16. Which of the following is a component of biogas?

(a) LPG

(b) methane

(c) CNG

(d) Hydrogen sulfide

Ans. (b) methane.

17. In the production of which of the following energy, mechanical energy is converted into electrical energy?

(a) Wind energy

(b) Solar Energy

(c) tidal energy

(d) Geothermal energy

Ans. (c) tidal energy

18. Which gas has the highest calorific value?

(a) Coal gas

(b) Biogas

(c) Hydrogen gas.

(d) methane gas

Ans. (c) Hydrogen gas

19. Which of the following gases does not damage the ozone layer?

(a) chlorine

(b) hydrogen

(c) Chlorofluorocarbon

(d) Nitrogen dioxide

Ans. (b) Hydrogen.

20. Which element found in chlorofluorocarbon (CFC) destroys ozone?

(a) chlorine

(b) carbon

(c) oxygen

(d) hydrogen

Ans. (a) Chlorine.

21. When is Environment Day celebrated?

(a) 6th May

(b) on 6th June

(c) 7th June

(d) 6th July

Ans. (b) On 6th June.

22. A molecule containing three oxygen atoms is called:

(a) oxide

(b) bi oxide

(c) Ozone.

(d) none of these

Ans. (c) Ozone

23. The device which converts solar energy into electrical energy is called:

(a) Solar cell

(b) Solar panels

(c) Solar cooker

(d) Solar heater

Ans. (a) Solar cell.

24. A large number of solar cell arrangement is called:

(a) Solar energy

(b) Solar panels

(c) Solar heater

(d) Solar cooker

Ans. (b) Solar panels

25. The device which generates heat or electrical energy from waste material is called:

(a) generator

(b) Incinerator

(c) Solar cell

(d) power producer

Ans. (b) Incinerator

26. fire is ice

(a) Mixture of fire and ice

(b) Ice obtained from the Himalayas

(c) Source of natural methane gas

(d) none of these

Ans. (c) source of natural methane gas

27. The chemical name of fire ice is:

(a) methane

(b) Hydrates

(c) methane hydrates

(d) none of these

Ans. (c) Methane hydrates.

28. Which gas absorbs the ultraviolet rays of the Sun?

(a) oxygen

(b) Ozone

(c) Hydrogen

(d) Helium

Ans. (b) Ozone

29. To which layer do the balloons that collect weather information go?

(a) thermosphere

(b) Exosphere

(c) mesosphere

(d) stratosphere

Ans. (d) Stratosphere.

30. In which circle does the temperature increase with height light?

(a) Change the board

(b) stratosphere

(c) mesosphere

(d) Troposphere

Ans. (b) Stratosphere.

31. In which layer of the atmosphere are the aurora lights seen?

(a) Ionosphere

(b) Troposphere

(c) stratosphere

(d) exosphere

Ans. (a) Ionosphere.

32. What is the height of the stratosphere?

(a) 80kms.

(b) 90kms.

(c) 110kms.

(d) 600kms.

Ans. (b) 90kms.

33. Which element is used to obtain nuclear energy?

(a) Radium

(b) Magnesium

(c) Uranium

(d) Chromium

Ans. (c) Uranium

34. The most damaging gas to ozone level is:

(a) CO_2

(b) CH_4

(c) CFC

(d) SO_2

Ans. (c) CFC

35. Ultraviolet radiation causes:

(a) Liver cancer

(b) Skin cancer

(c) Lung cancer

(d) blood cancer

Ans. (b) Skin cancer

36. does not remain in biogas

(a) methane

(b) Nitrogen.

(c) carbon dioxide

(d) hydrogen

Ans. (b) Nitrogen

37. The outermost layer of the atmosphere is:

(a) Ozone Circle

(b) Troposphere

(c) Exosphere

(d) Ionosphere

Ans. (c) Exosphere.

38. In which layer of the atmosphere do storms occur?

(a) Troposphere

(b) Stratosphere

(c) Mesosphere

(d) Thermosphere

Ans. (a) Troposphere

39. Which gas absorbs the ultraviolet rays of the Sun?

(a) Oxygen

(b) Ozone

(c) Hydrogen

(d) Helium

Ans. (b) Ozone

40. Weather balloons reach up to which layer of the atmosphere?

(a) Thermosphere

(b) Exosphere

(c) Mesosphere

(d) Stratosphere

Ans. (d) Stratosphere

41. Which gas does not harm the ozone layer?

(a) Nitrogen dioxide

(b) Chlorine

(c) Hydrogen

(d) Choro fluorocarbon

Ans.(c) Hydrogen

42. Which gas is ozone-depleting?

(a) Oxygen

(b) Nitrogen

(c) hydrogen

(d) Chlorine

Ans. (d) Chlorine

43. Which is a renewable source of energy

(a) Biogas

(b) Coal

(c) Wind energy

(d) Methane

Ans. (c) Wind energy

44. Which fuel has the highest calorific value?

(a) Coal

(b) Methane gas

(c) Biogas

(d) Hydrogen gas

Ans. (d) Hydrogen gas

45. Which element found in CFC destroys ozone?

(a) Carbon

(b) Chlorine

(c) Oxygen

(d) Hydrogen

Ans. (b) Chlorine

46. The decrease of temperature at the troposphere layer with per kilometer increase in height is -

(a) 5°C

(b) 5.5°C

(c) 6°C

(d) 6.5°C

Ans. (c) 6°C

47. The ray absorbed by the ozone layer of the atmosphere is

(a) gamma ray

(b) alpha ray

(c) UV light

(d) beta ray

Ans. (c) UV light

48. The example of biofuel is-

(a) coal

(b) diesel

(c) gasoline

(d) cow-dung

Ans. (d) cow-dung

49. Reason for the formation of the ozone layer in the atmosphere is -

(a) Chemical reaction

(b) Photochemical reaction

(c) nuclear reaction

(d) Atomic reaction

Ans. (b) Photochemical reaction

1 Marks

1. In which layer of the atmosphere do storms and rains occur? (Board Sample Paper)

Ans. Stratosphere

2. Which bacteria breaks down biomass into methane in a biogas plant? (Board Sample Paper)

Ans. Methanogenic bacteria.

3. Write one effect of increasing the temperature of the atmosphere.

Ans. Due to the increase in the temperature of the atmosphere, the glacier starts melting.

4. Diesel, L.P.G. And methane - which has the highest calorific value?

Ans. Methane has the highest calorific value.

5. How much does the temperature decrease when the height of one-kilometer increases in the atmosphere?

Ans. 6.5°C

6. L.P.G. What is the full name of?

Ans. Liquefied Petroleum Gas.

7. What is the unit of calorific value of fuel?

Ans. The calorific value of fuel is expressed in joule/gram (Jg-1) or kilo joule/gram (KJV-.).

8. Which layer is called the protective cover?

Ans. The ozone layers.

9. What is the unit of air pressure?

Ans. millibar

10. Write the names of two main greenhouse gases.

Ans. Carbon dioxide (CO_2) and methane (CH_4).

11. Which gas is released due to excessive use of freezer and air conditioning?

Ans. Chlorofluorocarbon (C.F.C.).

12. Of which material is the solar cell made and with which metal is it attached?

Ans. The solar cell is made of semiconductor silicon and the best conductor is connected to silver.

13. What is fuel?

Ans. The substance which produces heat on burning is called fuel.

14. What is the best fuel?

Ans. The fuel which has the highest calorific value is called the best fuel, such as hydrogen gas.

15. What is the main function of the ozone layer?

Ans. The main function of the ozone layer is to absorb the ultraviolet rays of the sun.

16. Which disease is caused by ultraviolet rays?

Ans. Ultraviolet rays cause diseases like skin disease and cataracts.

17. What is the main source of energy?

Ans. Sun is the main source of energy.

18. Where is methane gas obtained from?

Ans. Methane gas is obtained from marshy land, coal mines, and volcanoes.

19. What causes tides?

Ans. Tides occur due to the gravitational pull of the Sun and the Moon.

20. Write the names of some compounds that damage the ozone layer.

Ans. Chloroform carbon (C.F.C), carbon dioxide (CO), nitrous oxide (N_2O), etc.

21. Name two devices in which solar energy is used.

Ans. Solar cell and solar cooker.

22. What are fossil fuels called?

Ans. The fuels that are made from the remains of plants and animals inside the earth are called fossil fuels, such as coal, petroleum, etc.

23. What is biomass?

Ans. The substances present in living beings are called biomass.

24. Why is the subzone called the transition zone?

Ans. Due to the change in temperature and atmospheric pressure according to the height, the sub-zone is also called the transition zone.

25. What is the height of the Agnominal?

Ans. 10 km on the equator and 8 km on the poles.

26. What type of energy resources should be used for sustainable development?

Ans. Renewable energy sources.

27. What are the hot, molten rocks deep in the Earth called?

Ans. Magma.

28. What are the bacteria that convert animal excreta and waste into methane called?

Ans. Methanogenic bacteria.

29. Which element in fossil fuels is more responsible for Global warming?

Ans. Carbon

30. In which layer of the atmosphere do storms and rain occur?

Ans. Troposphere

31. What is the name of hot and molten rocks present deep inside the earth's surface?

Ans. Magma

32. What is called the bacteria which converts garbage and excretory products of animals into methane gas?

Ans. Methanogenic Bacteria

33. In which layer of the atmosphere the ozone layer is situated?

Ans. Ozonosphere

34. From which layer of the atmosphere do radio waves reflect?

Ans. Ionosphere

35. Which compound is known as fire ice.

Ans. Methane Hydrates

37. Name one bio-fuel.

Ans. ethanol

38. Heat reaches the earth from the sun through the radiation process. (Write true or false)

Ans. Correct

39. CFC affects which layer of the atmosphere?

Ans. Ozonosphere

40. Which atom, released from a chlorofluorocarbon under the influence of UV rays, decomposes ozone into oxygen?

Ans. chlorine

2 MARKS

1. What are combustible and non-combustible materials?

Ans. Combustible materials: Materials that can be burnt are combustible materials.

Non-combustible materials: Materials that cannot be burnt are non-combustible materials.

2. What is nuclear fission?

Ans. Nuclear fission: It is a process in which a heavier nucleus splits into lighter nuclei with the release of huge amounts of energy.

3. What are the types of sources of energy?

Ans. Types of sources of energy: There are two types of sources of energy. These are: (i) Renewable sources of energy. (ii) Non-renewable sources of energy.

4. What is petroleum? What is natural gas?

Ans. (i) Petroleum: An oil derived from rocks. A complex mixture of hydrocarbons.

(ii) Natural gas: Natural gas is a fossil fuel that is found on the top of petroleum under the earth.

5. What is a hydroelectric power plant?

Ans. Hydroelectric power plant: In this power plant the energy of flowing water is utilized to produce electricity on a large scale.

6. What is destructive distillation?

Ans. Destructive distillation: It is a process of burning wood in a limited supply of oxygen.

7. What is a mill?

Ans. Wind mill It is a device that converts wind energy to mechanical or electrical energy.

8. What is a good source of energy?

Ans. Good source of energy: A good source of energy should be renewable and environmentally friendly.

9. What is a solar cell?

Ans. Solar Cell: It is a device that directly converts solar energy into electrical energy.

10. What are the disadvantages of fossil fuels?

Ans. Disadvantages of fossil fuels: Following are the disadvantages of fossil fuels: (i) These are non-renewable (ii) They produce air pollutants on burning.

11. If you could use any source of energy for heating your food, which one would you use and why?

Ans. We use LPG (liquefied Petroleum Gas) for heating our food; because it is easily available in our kitchen, gives off smoke on burning and takes less time to do the job.

12. What is geothermal energy?

Ans. Geothermal energy: The energy which can be harnessed from the heat of Inside of the earth is called geothermal energy.

13. Name two energy sources that you would consider to be renewable, Give reasons for your choice.

Ans. Solar energy and wind energy are examples of renewable energy sources because they get quickly replenished.

14. Fish do not grow as well in warm water as in cold water-explain why.

Ans. Explanation: The solubility gas in water depends on the temperature. Consequently, the amount of soluble oxygen in warm water becomes less than that of cold water. As oxygen is very essential for the respiration and growth of fish in water, so the growth of fish becomes less in warm water.

15. Give the names of two energy sources that you would consider to be exhaustible. Give reasons for your choice.

Ans. Coal and petroleum are exhaustible energy sources because their stock is going to be finished soon and it will take millions of years for their formation.

16. What is chlorosis?

Ans. Chlorosis: The process of sulfur dioxide gas in the atmosphere retards the production of chlorophyll in the leaves of the plants. Because of which the green color of leaves is lost. This phenomenon of the disappearance of the green color of leaves is known as chlorosis.

17. In which season does the depletion of the ozone layer in Antarctica take place and when is it filled up again?

Ans. During the springtime in Antarctica i.e., in the months of September and October, the depletion of the ozone layer of the stratosphere takes place. But after the spring in the months of November and December the produced ozone hole is filled up.

18. What is siltation?

Ans. Siltation: In this process of mixing soil particles with water. The soil particles present in water procedure turbidity. Due to the turbidity of water, the free movements of the aquatic organisms are hindered and as a result their growth and productivity also get reduced.

19. What is meant by Inversion temperature in different regions of the atmosphere?

Ans. Inversion temperature: As we proceed from one region of atmosphere to the next higher region, the trend of temperature changes either from increase to

decrease or from decreased to increase. This trend of either increase or decrease is called inversion temperature.

20. How does carbon monoxide molecule link to hemoglobin molecule?

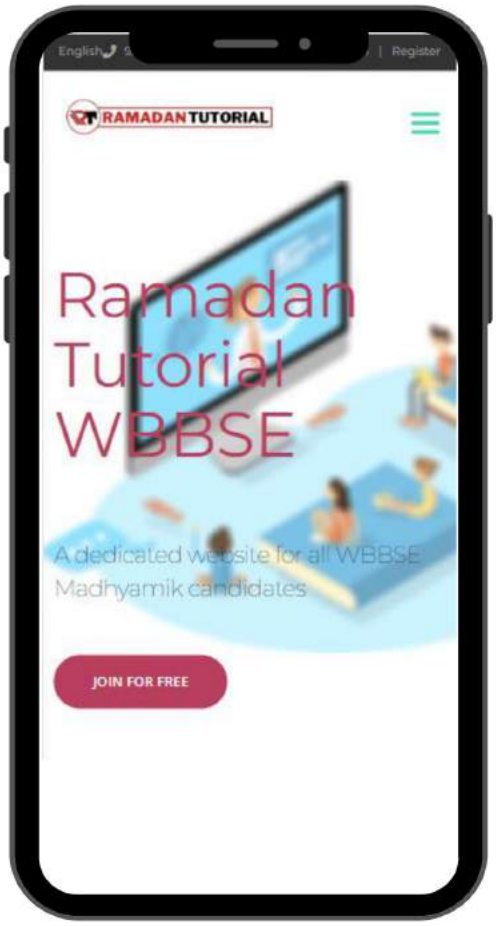
Ans. Explanation: In hemoglobin molecule Fe(II) atom is linked to five groups by coordinate bonds and the sixth site remains free. In normal condition aerial oxygen O_2 links to Fe(II) of this vacant coordination site. Now carbon monoxide (CO) being a stronger ligand than oxygen molecule in case of the presence of both CO and O2, CO occupies the vacant coordination site in hemoglobin instead of oxygen.

MP-2017
Group-A
(1.1) Which of the following is not a Greenhouse gas?
(a) Methane
(b) water vapour
(c) carbon dioxide
(d) oxygen
Ans: oxygen
Group-B
(2.1) In troposphere temperature _____ with increase in altitude?
Ans: Decreases
OR
Mention one harmful effect of global warming?
Ans: Melting of ice from glaciers
(2.2) Which atom released from a chlorofluorocarbon under the influence of UV ray decompose Ozone into oxygen?
Ans: Chlorine (Cl)
Group-C
(3.1) What is meant by calorific value of a fuel? Between coal and diesel which has greater calorific value?
Ans: The calorific value of a fuel is the amount of heat it generates on its complete combustion. For solid and liquid fuels, it is expressed in units of kJ/kg.
diesel

MP-2018
Group-A
(1.1) Which of the following greenhouse gases has maximum contribution towards global warming? (a)N2O (b)CH4 (c)CO2 (d)H2O vapour **Ans: (c)CO2**
Group-B
(2.1) Mention one use of biogas? **Ans: Bio gas can be used as a cooking gas**
OR
What is the role of NO in decomposition of ozone in the ozone layer? **Ans: NO + O3 = NO2 = [O] ; NO + [O] = NO2 + [O]**
(2.2) charcoal petrol and ethanol which one is a fossil fuel? **Ans: petrol**
Group-C
(3.1) What is methane hydrate? **Ans: Methane Hydrates : Methane hydrate is a crystalline solid that consists of a methane molecule surrounded by a cage of interlocking water molecules. It is also known as fire ice. Methane hydrate is considered to be the world's largest natural gas resource, trapped beneath permafrost and ocean sediments.**

MP-2019
Group-A
(1.1) Which among the following gas is absorbed long wavelength infrared radiation emitted from the Earth surface ? (a) N2 (b) O2 (c) CH4 (d) He **Ans: CH4**
Group-B
(2.1) Write down the unit of calorific value of fuel? **Ans: KJ/kgin case of solids and KJ/m^3 in case of liquids**
OR
Does the temperature increase or decrease with increase in altitude in the stratosphere? **Ans: increase**
(2.2) Which radiation coming from the sun is prevented by the Ozone Layer from failing on the earth surface? **Ans: Ultra violet Radiation**
Group-C
(3.1) What is the concept of Sustainable development? **Ans: Use of energy sources in control manner.**

MP-2020
Group-A
(1.1) which among the following gases does not help in depletion of ozone in the ozone layer?
(a)NO
(b) NO_2
(c) CFC
(d)CO_2
Ans: CO_2
Group-B
(2.1) Which fuel gas is harvested from coal bed?
Ans: Methane (CH_4)
OR
Name a gas present in air ,the increase in amount of which causes global warming.
Ans: CO_2
(2.2) Name an energy source which can be used for sustainable development?
Ans: Solar Energy
Group-C
(3.1) Write with reason in which layer among the layers of the atmosphere the pressure is the highest?
Ans: The troposphere is the layer of the atmosphere that has the highest air pressure. It is the lowest and densest layer of the atmosphere, where we humans live and where nearly all weather occurs. Since the troposphere is the lowest layer of the atmosphere, it has the most air molecules above it, and therefore has the highest air pressure.



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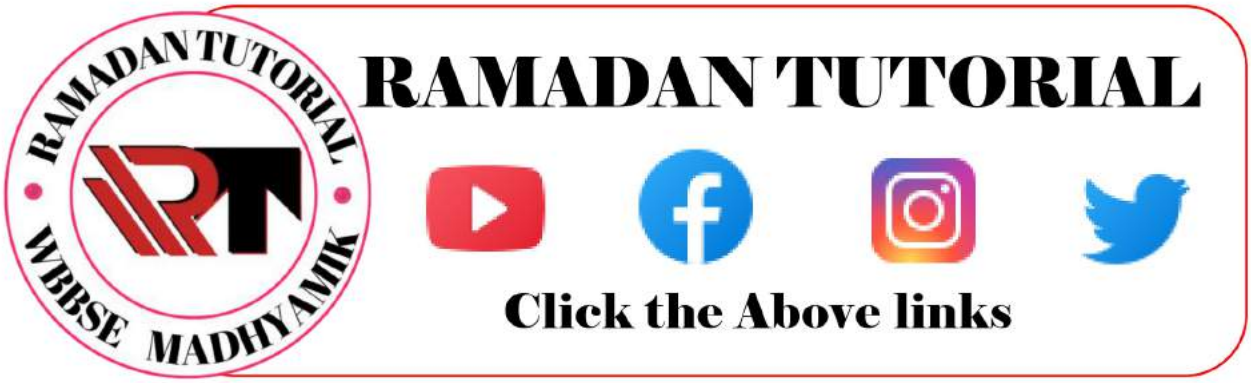
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