

According to the New Syllabus

AHMER'S

GENERAL SCIENCE

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Class - IX

Complete & Comprehensive Notes

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This Book Contains

- ✓ Detailed Questions & Answers (DAQ's)
- ✓ Short Questions & Answers (SAQ's)
- ✓ Multiple Choice Questions (MCQ's)
- ✓ Complete Solution of Text Book Exercises
- ✓ Important Diagrams for Examinations

by

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"was/1 Also/1st"

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Chapter - 1

Introduction & Role of Science

Section-I : Multiple Choice Questions (MCQ's)

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1. *Science is thought to be the knowledge based on:*
 - a) Assumptions
 - b) Predictions
 - c) Big Ideas
 - d) Observations ✓
 2. *Science is not:*
 - a) Exploration
 - b) Experimentation
 - c) Testing
 - d) Traditions ✓
 3. *Science has acquired the present status of a discipline due to the work of:*
 - a) Ancient people
 - b) Muslim Scientists
 - c) Western people
 - d) All of the above ✓
 4. *The initial remarkable work on optics was done by:*
 - a) Jabir Bin Hayyan
 - b) Muhammad Bin Zakria (Al Razi)
 - c) Ibn-ul-Haitham
 - d) Al-Bairuni
 5. *The book Al-Qanoon was written by a Muslim scientist named:*
 - a) Al-Beruni
 - b) Al-Razi
 - c) Ibn-ul-Haitham
 - d) Bu Ali Sina ✓
 6. *The industrial revolution came in 18th century after the invention of:*
 - a) Electricity
 - b) Electromagnet
 - c) Steam engine ✓
 - d) Microscope

Chapter -1 : Introduction & Role of Science

7. Science helps us to understand:

- a) Our environment ✓
- b) Our form of Government
- c) Human relationships
- d) All these

8. Technology is nothing but:

- a) Experience of man
- b) Knowledge
- c) Way of life
- d) Application of Scientific Knowledge ✓

9. The knowledge was first tested through experiments by:

- a) Greek Philosophers
- b) Romans
- c) Muslims
- d) Europeans

10. A nation is said to be strong on the bases of its.

- a) Manpower
- b) Natural resources ✓
- c) Science and technology
- d) Economic well being

11. The muslim scientist who laid the foundation stone of chemistry is:

- a) Bu-Ali-Sina
- b) Yaqoob al Kindi
- c) Jabir-Bin-Hayyan ✓
- d) M.Bin Musa

12. "Al-Jabar-Wal-Muqabilah", was written by:

- a) Jabir-Bin-Hayyan
- b) Abbas-Bin-Saeed
- c) M.Bin-Musa ✓
- d) Ibn-ul-Haitham

13. The formation of images was described in book "Al-Manazir", which was written by:

- a) Ibn-ul-Haitham ✓
- b) Bu-Ali-Sina
- c) Dr.Abdus Salam
- d) Dr.Qadeer Khan

14. The study of history and composition of earth is called:

- a) Meterology
- b) Geology ✓
- c) Astronomy
- d) Chemistry

15. A nation is said to be strong on the basis of:

- a) Natural Resources
- b) Industries
- c) Science & technology ✓
- d) All of these

Section-II : Short Answer Questions

Question: 1

Define Science.

Answer:

Science means: "A branch of knowledge based on objectivity and involving observation and experimentation."

Question: 2

Define technology.

Answer:

The application of scientific advances to benefit humanity. Technology includes all the objects from pencil and paper to the latest electronic gadget.

Question: 3

Define Atomic energy.

Answer:

The atoms of some materials like Uranium 235 and Uranium 238. This kind of energy is called atomic energy.

OR

The energy obtained when a heavy atom splits into two lighter ones of lower total mass.

Question: 4

Define Geology.

Answer:

Geology is the science and the study of the Earth, its composition, structure, physical properties, history, and the processes that shape it.



Question: 5

Define Microbiology.

Answer:

The science and study of micro organisms, including protozoans, algae, fungi, bacteria and viruses.



Question: 6

Define Living and Non-living things.

Answer:

Things that are alive, such as plants, animals or humans are termed as living thing. The study of matter and energy and the things in the environment is called non-living things.

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Question: 7

Write the characteristics of living beings.

Answer: Characteristics of Living beings:

1. They can move.
2. They can respire by means of lungs.
3. They can grow in size.
4. Their heart contains 4 chambers.
5. All systems are well-developed like, circulatory system, nervous system, digestive system etc.
6. They can reproduce themselves.



Question: 8

Write four differences between Living beings and Non-living beings.

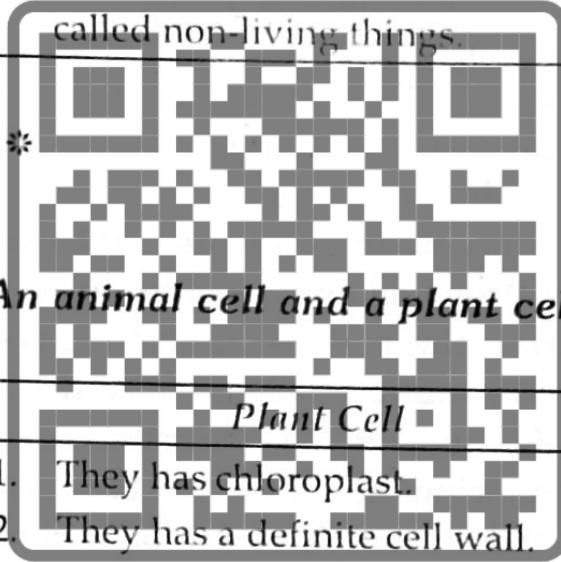
Answer:

Living Beings	Non-living Being
<ol style="list-style-type: none">1. They can move.2. They respire.3. They can grow.4. It includes animals, plants, & human beings.	<ol style="list-style-type: none">1. They cannot move.2. They cannot respire.3. They cannot grow.4. The study of matter and energy and the things in environment are called non-living things.

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Question: 9

Write four differences between An animal cell and a plant cell.

Answer:

Animal Cell	Plant Cell
<ol style="list-style-type: none">1. They have no chloroplast.2. They do not possess cell wall.3. They contain vacuoles which are small & numerous.4. No starch grains in the cytoplasm.	<ol style="list-style-type: none">1. They have chloroplast.2. They have a definite cell wall.3. Contains a few large vacuoles.4. Starch grains are commonly found in the cytoplasm.



Section-III : Detailed Answer Questions

Question: 1

What do you understand by Science?

Answer:

Science came into being when man first made the fire. It was the time when he lived in jungles and caves. He then started to live on, by hunting animals for which he made arrows and other tools for hunting. After that man started to eat the seeds of some plants. He started to collect some seeds and sowed them in rainy days. By and by he learned to culture the plants and thus agriculture began.

The word science means knowledge.

Science is knowledge about causes of the events, and occurrences taking place in the environment.

Science means, "A branch of knowledge based on objectivity and involving observation and experimentation".

From the history of science you can very well understand that our ancestors and fore fathers made the fire by rubbing stones together and now their descendants have smashed atoms to get tremendous energy being used for producing light, heat and electricity. The energy obtained is used to run our factories. It is also used for lighting homes, offices and for doing hundreds of domestic and industrial works.

If we look back to our past, we can see this world a new and quite different world from that of our fore-fathers. This is the result of man's thinking, observation exploring, investigating and innovating new ideas, new methods and this is what we call - SCIENCE.

Thus science can be described as knowledge which has been and could be obtained through observation, experimentation, hypothesizing, testing, synthesizing and organization.

Question: 2

Explain how science has developed to the present new discipline?

Answer:

Science is an integrated discipline. It integrates all the experiences to arrive at certain conclusions.

(1) Agricultural Sector:

It includes botany, physics, chemistry, meteorology, etc. This manifests that various branches of scientific knowledge are integrated together, to get the desired yields.



(2) Ghee Industry:

The ghee industry is agriculture based industry. The seeds of certain plants such as cotton, soyabean, sunflower, canola etc. are used for the extraction of edible oil from them. The oil is purified by treating it with some chemicals. Then hydrogen gas is passed to solidify this oil in order to bring it into the form of Ghee.

(3) Textile Industry:

It is also interwoven with other branches of science. In the first place it depends on agriculture for raw material i.e. cotton. Then some chemicals are used to decolourize the cotton fiber. Also some dyes and chemicals are used to tint the fiber in different colours. This is the work of chemistry. It uses oil also for printing the fiber so it looks to geological engineering. Therefore, it can be said that textile industry depends upon agriculture, physics, chemistry, geology etc. This explains that science is an integrated discipline.

Question: 3

What is technology?

Answer:

The application of scientific advances to benefit humanity. Technology includes all the objects from pencil and paper to the latest electronic gadget.

How to use the materials for the welfare and well being of the mankind is known as technology. Thus science and technology work together in the service of man.

Chapter -1 : Introduction & Role of Science

Thus we can say that technology is nothing but the application and use of scientific knowledge. If we look at our daily life, we find that in the past our homes were lighted by simple oil lamps. No doubt the invention of oil lamp and its use by our fore fathers is based on scientific knowledge and the technology of that time.

Question: 4

Describe the contributions of Muslim scientists.

Answer:

(1) Name of Scientist: Jabir Bin Hayyan

Major Contributions:

- Deduced chemical formula.
- Invented the three commonly known strong acids such as sulphuric acid, Nitric acid and Hydrochloric acid.

(2) Name of scientist: Ibn-ul-Haitham

Major Contributions:

- Describes transparent bodies as those which allow light to pass through them.
- Studied spherical mirrors and formations of images of objects.
- "Al-Manazir" the formation of images.

(3) Name of scientist : Bu-Ali-Sina

Major Contributions:

- Famous book "Qanoon" and Al-Shifa" are widely recognized for treatment of many diseases.
- His works enjoy the status of an encyclopedia in medicine through out the world.

(4) Name of scientist : Dr. Abdus Salam

Major Contributions:

- Awarded Noble Prize in Physics in 1979 for his work on Grand Unification Theory (GUT).
- Established International centre for theoretical physics at Trieste.



Chapter -1 : Introduction & Role of Science

(5) Name of Scientist : Yakoob Al-Kindi

Major Contributions:

- Given the title of Philosopher.
- Worked on Mathematics, Mechanics, relativity and waves.
- Wrote 241 books on different subjects.
- He studied sound and presented it in different frequencies.
- Worked on the nature of light.

* * *

Question: 5

What are the impact of science on modern society?

Answer:

The impacts of science on modern society are:-

- (1) Science and technology have contributed very significantly to the field of chemical industry.
- (2) Science and technology as described earlier have enabled man to understand his environment and make use of the materials found in the environment.
- (3) With the development of scientific knowledge and the inventions made by scientists man's mode of life and living have changed altogether.
- (4) Man can travel as fast as 1000 km per hour in the air and at an speed of 100 to 120 km per hours on the surface of the earth.
- (5) Today's man is no more ignorant, because of the invention of print and electronic media.
- (6) Due the development of industries, man has began to live in big cities and towns where life facilities such as food, education, health, work and job opportunities are available at hand.
- (7) Today's man enjoys a comfortable and easy life as compared to the life of his ancestors and this is possible due to the advancement of science and technology.

* * *

Question: 6

Describe whether science has been helping tool or it is harmful to mankind.

Answer:

Science has been helping tool (Advantages):

- (1) Science helped us to know that sound is produced when a body vibrates.
- (2) Use of electricity for lighting homes is the modern invention of science and technology.
- (3) We have get rid of manual labour and we now save enough time.
- (4) Man has learned many ways to cultivate different crops by using the flowing water of rivers for irrigation.
- (5) Science has helped us how clouds are formed and rain fall occurs.
- (6) Computer has made a very tremendous impact on the progress and growth of the industry, education, agriculture, trade and commerce.
- (7) Science has helped us understand why some diseases and epidemics break out.

Science has been harmful to mankind (Disadvantages):

- (1) Extra use of fertilizers and insecticides disturbing our life in the form of diseases.
- (2) The use of field again and again, increase the water logging and salinity.
- (3) Use of petroleum, increase the vehicles which are disturbing the environment with fumes and fuel discharge of them.
- (4) The air pollution disturbing the city health.
- (5) Use of many chemicals in the industry, disturbing the storage of water sea water and river water is becoming poisonous and disturbing the life.
- (6) Atomic bomb blast and their experiment disturbing the life.
- (7) Polluted agricultural products disturbing the life.

Question: 7

Write are the contributions of Pakistani scientists?

Answer:

1. **Dr. Abdus Salam** : He as a first Pakistani Physicist. He was awarded scholarship for higher studies in U.K. He was awarded Nobel Prize in Physics in 1979 for his work on Grand Unification Theory (GUT). He established International Centre for Theoretical Physics at Trieste, Italy where scientists for the developing countries are provided opportunities to augment their research work in which they are engaged in their own countries by joining with elites of physics. Of course, he was an asset of Pakistan and will remain in the hearts of learning circle.

2. **Dr. Abdul Qadeer Khan** : He obtained M.Sc. Metallurgy degree from Holland. He was selected as research Assistant in the same University. He obtained Ph.D degree from the University of Leaven Belgium. He worked as an expert at Ureco Enrichment Plant in Holland as a Joint Venture of the Government of Holland. When Dr. Abdul Qadeer Khan imbued with the supreme spirit of patriotism, he returned to Pakistan to serve his motherland. To honour him, the former Engineering Research Laboratories has now been named as A.Q. Khan Research Laboratories. He has been awarded Hilal-i-Imtiaz by the Government of Pakistan. He contributed in making Pakistan a nuclear state.

3. **Prof. Atta-ur-Rahman** : Prof Atta-ur-Rahman obtained his Ph.D. from Cambridge University (1968) and was later honoured by the prestigious degree of Doctor of Science (Sc.D.) by the Cambridge University (U.K.). He as over 644 Publications. He is the first scientist from the Muslim world to have won the prestigious UNESCO Science Prize (1999) in the 35 year old history of the Prize. Prof. Atta-ur-Rahman is the Coordinator General of COMSTECH, and OIC Ministerial Committee comprising the 57 Ministers of science and Technology from 57 OIC member countries. Prof. Atta-ur-Rahman was the Federal Minister for Science and Technology (14th March, 2000 - 20th November, 2002). presently he is Federal Minister / Chairman of the Higher Education Commission and Adviser to the Prime Minister on Science and Technology. Prof. Atta-ur-Rahman is also the President of the Pakistan Academy of Sciences.

Question: 8

Describe the limitations of science.

Answer:

Science has its own limitations as well. Science has nothing to do with the moral and spiritual aspects of our life. Goodness, beauty, truth, and justice cannot be evaluated by science. It is a fact that religion and moral values which are of supreme importance for life of humanity are beyond the domain of science and can discover and provide information only about these things which are subject to physical laws and can lend themselves to scientific observations.

Moreover, it creates environmental pollution too.

Question: 9

Define some of the important branches of science.

Answer:

Some of the important branches of science are:

(i) Chemistry

Chemistry is the branch of science that deals with the properties, composition and structure of matter.

(ii) Physics

Physics is a branch of science which deals with force and energy.

(iii) Astronomy

Astronomy is another branch of science which studies the relationship of our planet earth with other heavenly bodies such as, sun, moon, stars etc.

(iv) Biology

It is that branch of science which deals with the study of living things.

Question: 10

Define concept of science in Islam.

Answer:

The word science means knowledge that makes man superior to other creatures and even angels. The Almighty Allah says " Allah has created every animal from water, and of them there are some that crawl on their bellies, and there are some that walk on two legs, and some others that walks on four legs. Allah creates, whatever He will. Verily Allah is able to do all the things." (Sura Noor, Ayah 45)

Holy Quran explains that:

"He has created the heavens and earth with truth." (Sura Zumur, Ayah 5)

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Chapter - 2

Our Life and Chemistry

Section-I : Multiple Choice Questions (MCQ's)

1. **The quantity of oxygen by volume in air is:**
a) 72 - 90 %
b) 20.99% ✓
c) 74.51%
d) 31%
2. **The percentage of nitrogen in urea is:**
a) 36%
b) 20.99%
c) 46% ✓
d) 42%
3. **The normal percentage of carbon in wrought iron is:-**
a) 1.5 to 4.5%
b) 0.5 to 1.5%
c) 0.6 to 1.2%
d) 0.12 to 0.25% ✓
4. **The percentage of zinc in bronze is:-**
a) 60%
b) 33%
c) 1.0% ✓
d) 2%
5. **The compound used in the development and printing of photographic films is:-**
a) Sodium carbonate
b) Sodium thiosulphate ✓
c) Calcium carbonate
d) Magnesium oxide
6. **The hardest substance in nature is:**
a) Diamond ✓
b) Graphite
c) Lead
d) Magnesium
7. **The most essential element in petroleum and other organic compounds is:**
a) Calcium
b) Sulphur
c) Magnesium
d) Carbon ✓

8. Lead pencils are made up of:

- a) Graphite
- b) Clay
- c) Graphite & clay ✓
- d) None of these

9. Which of the following is trace element is found in human body.

- a) Oxygen
- b) Zinc ✓
- c) Carbon
- d) Calcium

10. What percent of human body is made up of carbon & its compound.

- a) 25%
- b) 50%
- c) 18% ✓
- d) 90%

11. Which of the following allotropic form of carbon does not conduct electricity.

- a) Diamond ✓
- b) Graphite
- c) both a & b
- d) None of the above

12. Organic compounds are those chemical compounds which essentially contains:

- a) Carbon ✓
- b) Hydrogen
- c) Oxygen
- d) Sulphur

13. For Photosynthesis CO_2 and _____ is required by green plants.

- a) H_2O ✓
- b) H_2
- c) O_2
- d) None of these

14. Chlorophyll is present in:

- a) Cells
- b) Chloroplast ✓
- c) Nucleus
- d) Golgi bodies

15. Water has a maximum density at:

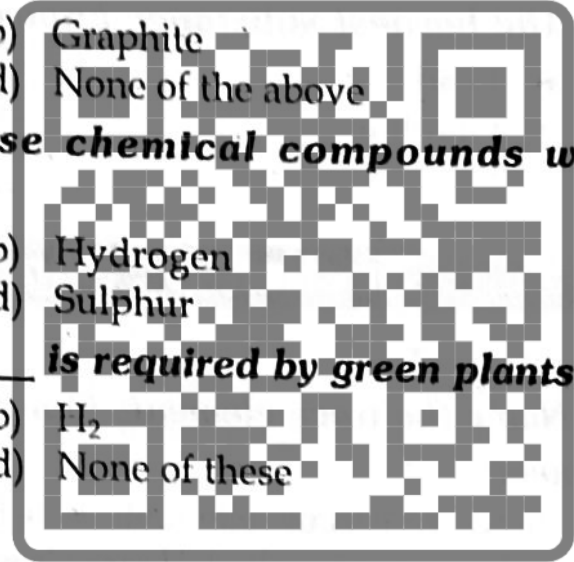
- a) 40°C
- b) 14°C
- c) 4°C ✓
- d) 20°C

16. On cooling below 4°C , water

- a) Expands ✓
- b) Contracts

17. Nitrogen is an essential element of:

- a) Starch
- b) Sugars
- c) Proteins ✓
- d) Carbohydrates



18. Which of the following gas is essential for existing of life.

- a) Oxygen ✓
- b) Nitrogen
- c) Hydrogen
- d) CO₂

19. Which of the following element is used in making tooth paste?

- a) Sodium
- b) Magnesium
- c) Calcium ✓
- d) Chlorine

20. Which of the following is purest form of iron?

- a) Steel
- b) Wrought Iron ✓
- c) Cast Iron
- d) All of these

21. Brass is an alloy of :

- a) Copper & Zinc ✓
- b) Copper, Zin & tin
- c) Copper & Magnesium
- d) None of these

22. The hardest substance known to man is:

- a) Lead
- b) Sulphur
- c) Graphite
- d) Diamond ✓

Section-II : Short Answer Questions

Question: 1

Name the trace elements found in animals.

Answer:

There are certain elements which are found in the body in small traces. These elements are called "*Trace elements*". These trace elements are listed in:

- | | | | |
|---------------|------------|--------------|----------------|
| (1) Iron | (2) Copper | (3) Iodine | (4) Cobalt |
| (5) Manganese | (6) Zinc | (7) Selenium | (8) Molybdenum |

Question: 2

Name any ten Organic compounds, used in daily life.

Answer:

The organic compounds used in daily life are:

- | | | |
|----------------|--------------------|---------------|
| (1) Cotton | (2) Vegetable ghee | (3) Vitamins. |
| (4) Proteins | (5) Soap | (6) Medicines |
| (7) Detergents | (8) Petroleum | (9) Plastic |
| (10) Fats | | |

Question: 3

What is an Alloy.

Answer:

The alloy is a combination of two or more elements to increase the hardness and lustre of the resulting products e.g brass is an alloy of zinc and copper. It is used to prevent rust.

Question: 4

What are the allotropic forms of carbon?

Answer:

The allotropic forms of carbon are:-

- | | |
|----------------------|--------------|
| (1) Diamond | (2) Graphite |
| (3) Amorphous Carbon | |

Question: 5

Define Fertilizer.

Answer:

A chemical applied to the ground to replace substances removed from it by the growing of crops.

Fertilizers supply elements essential to plant life such as nitrogen (in nitrates and ammonium salts), phosphorus (in phosphates) and potassium (in its salts).

Question: 6

Name the six Artificial fertilizers.

Answer:

The Artificial fertilizers are:-

- | | |
|--------------------------------|-----------------------|
| 1) Urea | 2) Ammonium Nitrate |
| 3) Ammonium Sulphate | 4) Nitrophosphate |
| 5) Ammonium Hydrogen Phosphate | 6) Ammonium Phosphate |



Question: 7

Define Photosynthesis.

Answer:

The process by which green plants make carbohydrates such as sugar, using water, carbondioxide, and sunlight.

* * *

Question: 8

Define Respiration.

Answer:

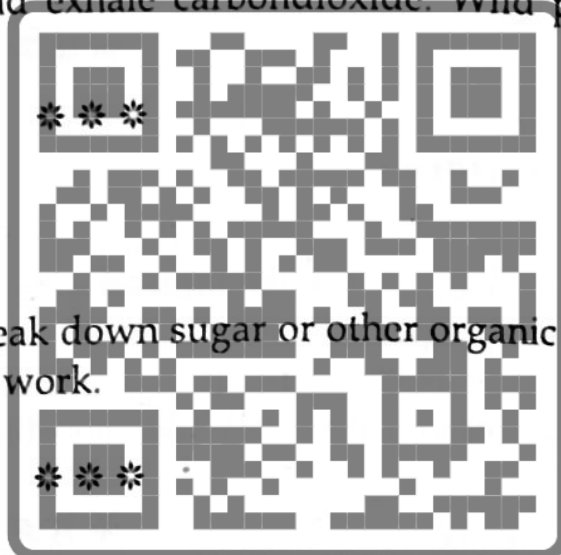
Respiration is the processing of exchanging oxygen and carbondioxide between an organism and its external environment. During the metabolic process human inhale oxygen and exhale carbondioxide. Wild plant respire through transpiration.

Question: 9

Define Cellular respiration.

Answer:

The process in which a cell break down sugar or other organic compounds to release energy used for cellular work.



Section-III : Detailed Answer Questions

Question: 1

List the names of various elements which make up the human body.

Answer:

Basic building elements of human body are:-

- | | | |
|---------------|-------------|----------------|
| (1) Oxygen | (2) Carbon | (3) Hydrogen |
| (4) Nitrogen | (5) Calcium | (6) Phosphorus |
| (7) Potassium | (8) Sulphur | (9) Chlorine |
| (10) Sodium | | |



Question: 2

Name the four basic building elements necessary for life.

Answer:

The four basic building elements necessary for life are: Oxygen, Nitrogen, Hydrogen and Carbon.

- (1) **Oxygen** Its is useful for respiration.
- (2) **Nitrogen** It is present in proteins and essential for life.
- (3) **Hydrogen:** They Occurs naturally combined in water and oil, in most organic compounds and in all living thing.
- (4) **Carbon:** They plays an important role in the growth of the human body and other animals and plants.

Question: 3

What do you understand by the term allotropy?

Answer:

Allotropy means: "The property of an element where by it can exist in two or more physically different forms while retaining the same chemical properties".

Examples are carbon as diamond or graphite; Oxygen as oxygen, O_2 or Ozone, O_3 .

Question: 4

Compare the properties of allotropic forms of carbon.

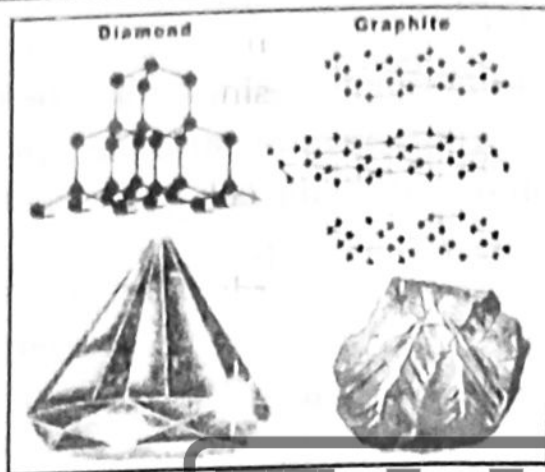
Answer:

Carbon occurs in nature in two allotropic forms, diamond and graphite. Both these forms are crystalline in nature.

Diamond	Graphite
1) Diamond is colourless in pure state.	1) Graphite is grey in colour.
2) It is transparent and shiny.	2) It is opaque.
3) It is the hardest substance in nature.	3) It is soft and slippery to touch.
4) Electricity cannot be conducted through diamond.	4) Electricity can be conducted through graphite.

Chapter -2 : Our Life and Chemistry

5) Its density is 3.3 gram /cm	5) Its density varies from 2.3 to 2.5 gram /cm ³
6) They are used in glass cutting, drilling in rocks and making dyes.	6) They are widely used in pencil as pencil lead.



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Question: 5

Give an illustrated account of nitrogen cycle in nature.

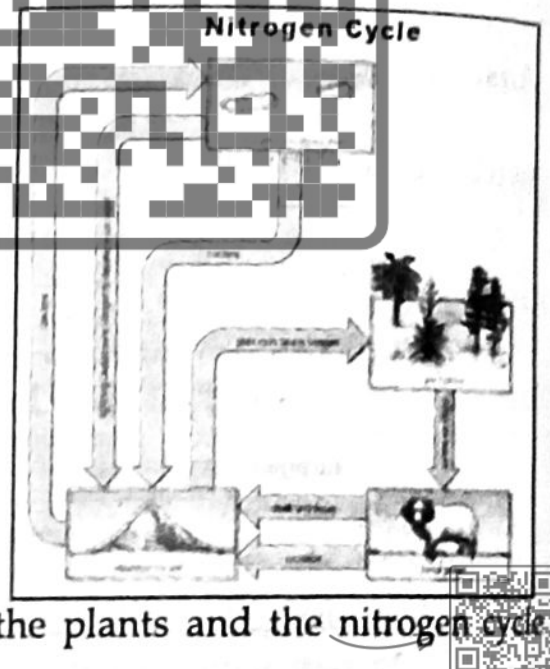
Answer:

Nitrogen Cycle:

The circulation of nitrogen compounds in nature is called nitrogen cycle.

Explanation:

Inorganic nitrogen compounds in solution in the soil are taken in by plants and changed into Proteins. These are eaten by animals and reconverted into simple substances which are returned to the soil as waste products and by decay Nitrifying bacteria in the soil change these compounds into the others more suitable for the plants to absorb. These nitrates are absorbed by the plants and the nitrogen cycle starts again.



Question: 6

What is anomalous expansion of water? Explain your answer with reference to aquatic life?

Answer:

At 4°C water has a maximum density at 4°C because on cooling its volume goes on decreasing until the temperature reaches 4°C . On cooling below 4°C the volume of water again starts increasing till it freezes into ice. That is why the density of water is greater than ice and ice being less denser floats on water. This unique property of water is known as anomalous expansion of water.

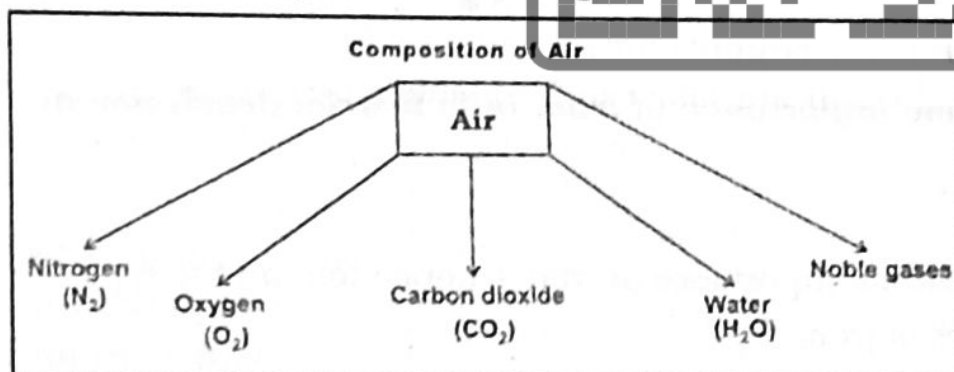
Water freezes from top to downwards. In winter the upper layer of water in the lakes, rivers and even the seas may freeze and a floating layer of ice in water. The layer of floating ice insulates, the rest of water underneath it. In this way the water underneath is prevented from freezing. Due to this unique property of water, the fish and other aquatic life continue to survive under frozen water.

Question: 7

What is composition of air? Which is the most active constituent of air?

Answer:

Air is an mixture of many gases. However, Oxygen and Nitrogen are the two basic constituents. Composition of air is given below:-



(1) Oxygen	20.99%
(2) Nitrogen	78.03 %
(3) Argon and other gases	0.94%
(4) Carbondioxide	0.03%
(5) Ammonia and Ozone	Traces
(6) Water Vapours	In Varying amounts

Question: 8

Describe the importance of sulphur element in agriculture development.

Answer:

Following are the important points of sulphur element in agriculture development.

Sulfur is an essential nutrient in crop production. Sulfur has become more important as a limiting nutrient in crop production in recent years for several reasons.

These include higher crop yields that require more Sulfur, less Sulfur impurities in modern fertilizers.

Less use of Sulfur containing pesticides, reduced industrial Sulfur emissions to the atmosphere, and a greater awareness of Sulfur needs. It is used in the formation of amino acids, proteins, and oils. It is necessary for chlorophyll formation.

Sulfur play vital role in the conversion of nitrate to amino acids. Crops having high nitrate need will usually also have high Sulfur needs.

Sulfur content of irrigation water should be determined since in some cases it can deliver significant amounts of Sulfur.

Sulfur is an important component of complete and balanced crop nutrition, and has justifiably gained more attention in recent years.

Question: 9

Write some importance of Iron, in industrial development.

Answer:

Iron:

The industrial importance of iron is dependent on the type of iron. There are three types of iron.

(1) Cast Iron

- (a) It is the most impure form of iron.
- (b) A lot of cast iron is used to manufacture steel.
- (c) The iron is used to manufacture stoves, parts of machines and radiators
- (d) Cast iron contains 15 to 4.5% carbon.

(2) Wrought Iron:

- (a) It can be drawn into sheets and wires.
- (b) It is used to manufacture rods, agricultural instrument and chains.
- (c) This is the most impure form of iron.

(3) Steel:

- (a) Steel contains 0.5 to 1.4% carbon.
- (b) It is used to make railway lines, roof girders, parts of machines etc.

* * *

Question: 10

Write some importance of Magnesium.

Answer:

Some importance of magnesium are :

- (1) The presence of magnesium in the body helps in the absorption of carbohydrates phosphorus and salt.
- (2) Magnesium activates enzymes
- (3) Magnesium oxide is used in manufacture of fire bricks.
- (4) Magnesium is used in the form of ribbon to ignite the welding compounds.
- (5) Magnesium is good for your skin and hair.
- (6) Magnesium deficiency may cause baldness muscular pain etc.

* * *

Question: 11

Write some importance of Iodine.

Answer:

Iodine:

- (1) Iodine is substantially found in sea food.
- (2) Iodine plays an important role in the proper working of thyroid gland.
- (3) It is used for industrial purpose.
- (4) Deficiency of iodine causes thyroid glands to enlarge. It is called goiter.
- (5) Potatoes, Spinach, fish and garlic contains iodine.
- (6) It is a good antiseptic agent.

* * *

Question: 12

Write some importance of Phosphorus.

Answer:

Phosphorus

- (1) Phosphorus plays a major role in the growth of teeth and bones.
- (2) It is present in meat, fish, egg, milk, cheese, grains and dry fruit.
- (3) Phosphorus is important for the movement of joints, and muscles.
- (4) Phosphorus is mainly used in match industry.
- (5) Yellow phosphorus is used in the preparation of certain medicines.
- (6) Rat killing tablets are made by mixing white phosphorus with flour and oil.

Question: 13

Write some importance of Copper.

Answer:

Copper

- (1) Copper is a good conductor of electricity.
- (2) It is used to make coins and household utensils.
- (3) Different instruments and parts of machines are also made of copper.
- (4) Copper sulphate is used to dye clothes, making ink and medicines.
- (5) Copper sulphate mixed with calcium hydroxide is used to destroy fungus.

Question: 14

Write some importance of Chlorine.

Answer:

Chlorine

- (1) Chlorine plays a key role in our body.
- (2) It helps in the purification of food.
- (3) Chlorine is extensively used to purify water from germs.
- (4) Chlorine is used to obtain gold and pure metals.
- (5) Poisonous gases, gun-powder, many types of dyes and medicines are also made from chlorine.

Question: 15

Write some importance of Calcium.

Answer:

Calcium

- (1) Calcium is an essential constituent of teeth and bones.
- (2) It is present in milk, cheese, butter etc.
- (3) Vitamin A, D and proteins help in the absorption of calcium in human body.
- (4) Calcium is used abundantly in cement, glass and enamel industries.
- (5) Deficiency of calcium may cause Osteoporosis in human.

Question: 16

Write some importance of Sodium.

Answer:

Sodium

- (1) This metal occurs chiefly as Sodium Chloride.
- (2) Sodium is being used in the manufacture of synthetic rubber as a catalyst.
- (3) Sodium is also used in the manufacture of sodium cyanide and sodamide.
- (4) One important sodium compound is Sodium Hydroxide which is extensively used in soap, paper and artificial silk industries.
- (5) The mixture of sodium bicarbonate and tartaric acid is used as baking powder.



Section-I : Multiple Choice Questions (MCQ's)

- 

Chapter -3 : Biochemistry and Biotechnology

8. The sum of all the chemical changes occurring within the human body is called:
- a) Metabolism ✓
 - b) Catabolism
 - c) Reproduction
 - d) Respiration
9. Photosynthesis is an example of:
- a) Anabolism ✓
 - b) Catabolism
 - c) Metabolism
 - d) Cannibalism
10. In the process of digestion, proteins are converted into :
- a) Glucose molecule
 - b) Amino acids ✓
 - c) Fatty acids
 - d) None of these
11. The Organic compound Carbohydrates, are made up of :
- a) Carbon
 - b) Hydrogen
 - c) Oxygen
 - d) All of the above ✓
12. Lipolytic enzyme helps in the digestion of :
- a) Carbohydrates
 - b) Fats ✓
 - c) Proteins
 - d) All of these
13. Red blood cells are also known as:
- a) Leucocytes
 - b) Erythrocytes ✓
 - c) Platelets
 - d) None of these
14. The function of platelets is:
- a) To provide defence against diseases
 - b) To carry oxygen to all parts of body
 - c) To stop bleeding ✓
 - b) No one is right
15. Blood constitute about ____ of the total vertebrate body :
- a) 10%
 - b) 50%
 - c) 20%
 - d) 80% ✓
16. Production of energy in all body is the result of reaction between food & ____?
- a) CO_2
 - b) Blood
 - c) O_2 ✓
 - d) Proteins

Section-II : Short Answer Questions

Question: 1

Differentiate between photosynthesis and respiration. What sort of metabolic reaction are they?

Answer:

Photosynthesis	Respiration
(1) This process take place in green parts of the plant.	(1) It occurs in cells and in all parts of the plant body.
(2) Cellular organelles for photosynthesis are the chloroplasts.	(2) The cellular organelles where respiration takes place with the help of enzymes.
(3) Photosynthesis is the building up of food.	(3) Respiration is the breaking down of food.
(4) It is a reduction reaction and requires CO_2 and water.	(4) It is an oxidation reaction. It requires oxygen.
(5) During this process energy is required which is obtained from the sun.	(5) During this process energy is released.
(6) During the process of photosynthesis CO_2 is utilised and oxygen O_2 is produced.	(6) During this process O_2 is utilised and CO_2 is produced.

Photosynthesis is an example of anabolism because it involves the synthesis of carbohydrates from inorganic compounds. Respiration is a catabolic reaction and involves the breaking up of carbohydrates into carbon dioxide and water for the liberation of energy.

Question: 2

Describe the sources of protein for the human food. Discuss their fate inside the body.

Answer:

Sources of protein for the human food

The sources of protein in the human food are:-

- | | |
|----------------------------------|-----------------------------|
| (1) Fishes and all the sea foods | (2) Green leafy vegetables. |
| (3) All the cereals. | (4) Meat and chicken. |

Chapter -3 : Biochemistry and Biotechnology

Protein fate inside the body

Protein make up the tissues of the living organism, hormones, enzymes and nucleic acids: Proteins constitutes the major structural components of hair, skin ligaments, tendons, muscles and thousands of other biological structures.

Question: 3

What are leucocytes? How do they defend the body?

Answer:

Leucocytes:

White blood cells are known as leucocytes.

They defend the body against invading micro-organisms which they eat up are called phagocytes.

Question: 4

What is a nucleotide? Describe its components.

Answer:

Nucleotide:

A nucleotide is an organic molecule made up of a nucleotide base.

Components of Nucleotide:

The three components of a nucleotide are the nitrogenous base, a sugar and a phosphate group. Nucleotides form nucleic acids, which are organic compounds that are found in every cell. Nucleotides make up the basic units of DNA and RNA molecules.

Question: 5

Why genetic engineering is far more better than selective breedings?

Answer:

In selective breeding healthy and defective both types of genes are transmitted together to the offspring but genetic engineering is far more better because it increases productivity and efficiency in the breeding of organisms.

Question: 6

How vaccines have been saving the lives of million?

Answer:

Vaccines were made from treated bacteria which develop immunity by producing antibodies against these bacteria and viruses. Vaccines are used to make people immune to an infectious organism so they donot become ill. In this way vaccines have been saving the lives of million.

Question: 7

Why recycling is must for non-renewable resources?

Answer:

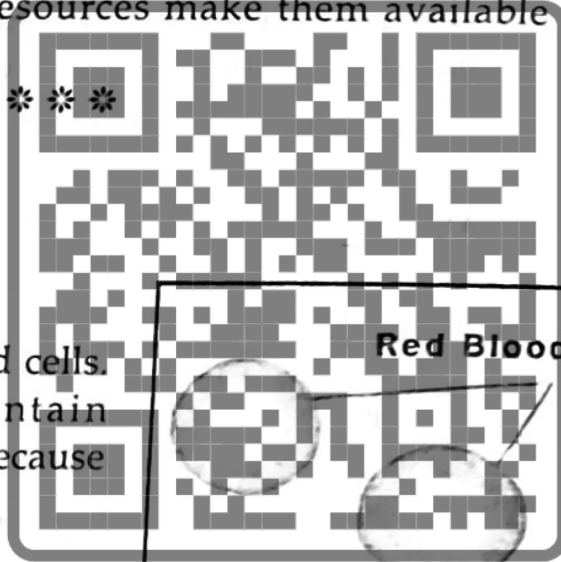
Recycling of non-renewable resources make them available to be used again and again.

Question: 8

Define red blood cells.

Answer:

The most numerous of the blood cells. They are red because they contain haemoglobin. They are important because they carry oxygen around the body.



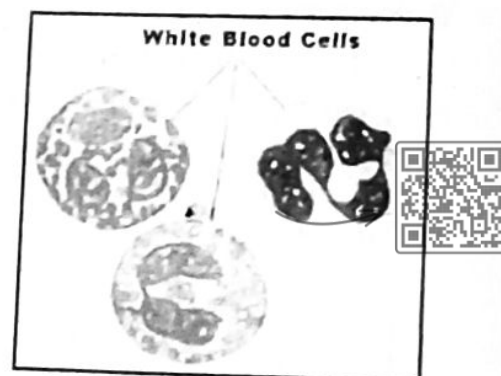
Question: 9

Define white blood cells.

Answer:

White Blood Cells:

One of the two kinds of cells in the blood. They are fewer in number than the red cells. Their main use is to destroy any germs which get into body.



Question: 10

Define blood groups.

Answer:

On the basis of some special chemicals present on the outer membrane of RBCs, the human blood is differentiated into four groups called 'A', 'B', 'AB' and 'O' blood groups having chemical (antigen) A, B, both A, B, and none respectively.

Question: 11

Define Platelets.

Answer:

Platelets:

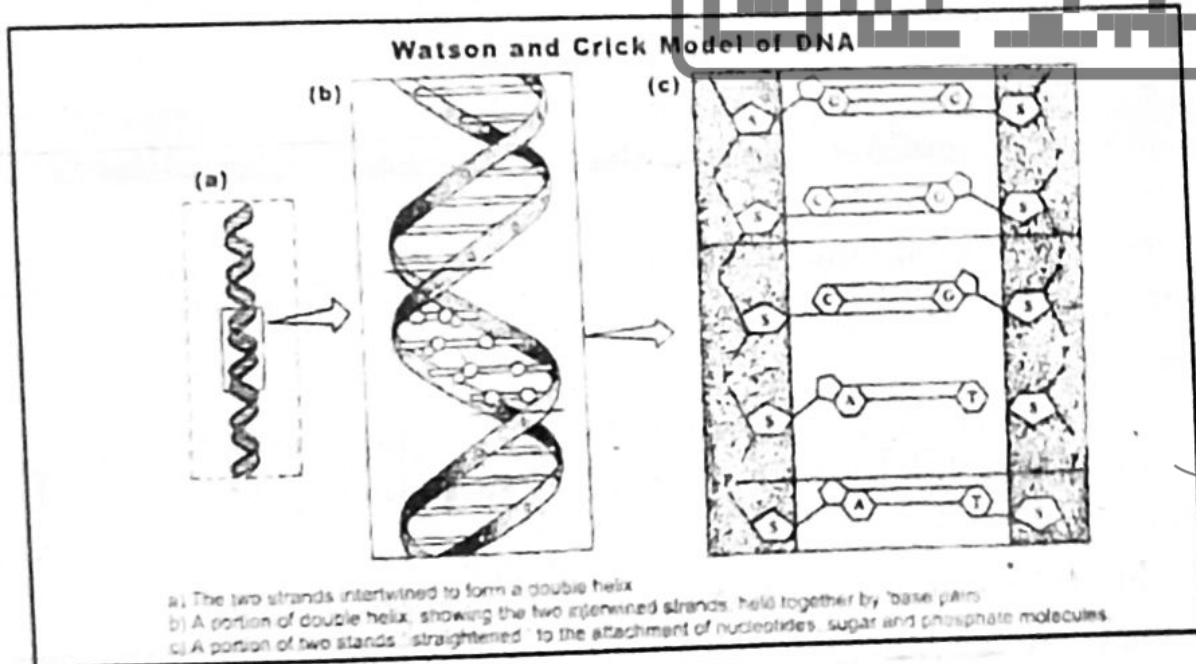
Platelets is a very small cells in the blood which help to harden (clot) the blood on the outside of a wound.

Question: 12

Define (DNA).

Answer:

DNA stands for Deoxyribonucleic acid. DNA is the substance in the nucleus of a cell which is important in heredity. When cells divide or when gametes are formed, the DNA passes an information to the next set of cells.



Question: 13

Define Erythrocytes.

Answer:

Erythrocytes:

Each millilitre of human blood contains about 5 billion red blood cells which are known as erythrocytes. Each erythrocyte is a flat disk with a central depression. Attached to the outer membranes of the erythrocytes is a collection of polysaccharide, which determines an individual's blood group.

* * *

Question: 14

Define Penicillins.

Answer:

These are produced by the mould *Cephalosporium*. They are useful against bacteria which have developed resistance to penicillins.

Question: 15

What is plasma?

Answer:

Plasma:

Plasma is the liquid part of blood. It is mostly water, with many different substances in it. The red and white blood cells are carried in the plasma.

* * *

Section-III : Detailed Answer Questions

Question: 1

Define metabolism and its types? what is its importance.

Answer:

Metabolism:

The name given to all the processes which happen in the life and growth of a living thing which concern chemical substances and energy is called metabolism.

or

The chemical changes that occur in a living animal or plant. The metabolism of a substance refers to the changes that substance undergoes in an

animal or plant.

Types of Metabolism:

Metabolism has divided into 2 types

- (1) Anabolism
- (2) Catabolism

(1) Anabolism:

All the building up processes in a living body is called anabolism.

Example : the making of sugar and starch from simple carbondioxide and water.

(2) Catabolism:

The breaking down of chemical substances in the body. Energy is always set free. Respiration is the main catabolic happening.

Importance of Metabolism:

- ▶ All living organisms need energy to grow and reproduce, maintain their structures, and respond to their environments; metabolism is the set of the processes that makes energy available for cellular processes.
- ▶ Metabolism is a combination of chemical reactions that are spontaneous and release energy and chemical reactions that are non-spontaneous and require energy in order to proceed.
- ▶ Living organisms must take in energy via food, nutrients, or sunlight in order to carry out cellular processes.
- ▶ The transport, synthesis, and breakdown of nutrients and molecules in a cell require the use of energy.

* * *



Question: 2

What are enzymes? Discuss their properties and their types.

Answer:

Enzymes:

A chemical substance produced by living cells which is able to change on substance into another without being changed itself.

OR

Enzymes are very large complex protein compounds which are produced by the living cells. They are important to all living systems.



Properties:

- (1) Enzymes are important in digestion.
- (2) Enzymes are proteins.

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- (3) Each enzyme affects only one type of chemical reaction.
- (4) Enzymes are destroyed by heat.
- (5) An enzyme is a biological catalyst.
- (6) They are vitally important to all living system.

Types of Enzymes:

They help in digestion of organic food. They are classified into 3 groups.

- (1) **Amylolytic:** which digest carbohydrates.
- (2) **Proteolytic:** which digest proteins.
- (3) **Lipolytic:** which breaks the fats.

Question: 3

What organic compounds are necessary for a living body and why?

Answer:

The carbohydrates, proteins and fats are major components of food and important organic compounds for a living body.

Carbohydrates:

Sugar and starch are important carbohydrates in our diet. They are the cheapest and most readily available source of energy. They are readily oxidized, when they combine with oxygen to produce heat and energy. One gram of carbohydrate can provide 4.1 calories of energy.

Proteins:

Meat, fish, eggs, milk and cheese are important sources of animal protein. All plants contain some protein. Proteins constitute the major structural components of hair, skin ligaments, tendons, muscles and thousands of other biological structures. Proteins are needed to build cells and tissues, so it is essential to include some proteins in the diet. One gram of protein can provide 4.1 calories of energy.

Fats:

Animal fats are found in meat, milk, cheese, butter and egg-yolk. Plant fats occur as oils in fruits and seed. Fats are rich source of energy. Fat serve principally as fuel and are stored in the body as reserved food. Fats are also used in the formation of various hormones. One gram of fats can produce 9.3 calories of energy.

Question: 4

Discuss the composition and functions of human body blood.

Answer:

Composition of Blood:

The human body contains about 5 litres of blood. Approximately 45% of this blood is composed of cells. Human blood is a complex connective tissue that is composed of blood cells; red blood cells, white blood cells and platelets being suspended in a fluid called the plasma.

Functions of Blood in Human Body

The important functions of human body blood are:-

- (1) **Oxygen:** To carry oxygen to all parts of the body.
- (2) **Carbondioxide:** To carry carbondioxide to the site of elimination.
- (3) **Waste Products:** To carry waste products to site of removal.
- (4) **Digested Food Molecules:** To carry digested food molecules to all body tissues.
- (5) **Bacteria:** To fight bacteria and foreign organisms invading the body.
- (6) **Transport Hormone:** Which are formed in one part and used in other parts of the body.
- (7) **Body Temperature:** To maintain body temperature.

Question: 5

What do you mean by genetic engineering? Discuss importance for the betterment of mankind.

Answer:

Genetic Engineering

It is the process of replacing a segment of DNA by another segment, from another organism for obtaining desired results.

Importance for the betterment of mankind:

- (1) One type of genetic engineering is changing of genes to produce substances for medical use.
- (2) Gene therapy in which diseased gene will be replaced by a healthy gene to cure a disease.

Example:

- (1) **Thalassemia** is considered inherited disease of human blood when the gene which codes for proper haemoglobin is defective.

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- (2) The expression gene can be modified through partly detection of the gene.
- (3) Human growth hormones have been produced with the help of this technique.
- (4) A gene may be inserted into a crop plant which makes it resistant to herbicides.
- (5) Cloning helps to produce same breed or plants in a large quantity.

Question: 6

What are antibiotics? Name a few antibiotic and their function. Why excessive use of antibiotic is not advisable?

Answer:

Antibiotics:

A substance made by a fungus which stops the growth of some harmful bacteria.

Name of Antibiotics and Their Function

(1) Metabolic inhibitors	specific for bacterial enzymes.
(2) Penicillin	block the synthesis of the bacterial cell wall.
(3) Streptomycin	block protein synthesis.
(4) Sulfa	prevents the production of a co-enzyme

Disadvantages of excessive use of Antibiotics:

Most physicians believe that antibiotics should only be administered when absolutely necessary because they reduce the number of beneficial bacteria in the intestinal tract. Some patients are allergic to antibiotics, and their reaction to them may even be fatal.

Question: 7

What are wastes? Why they not be thrown away? Suggest a few steps for their better disposal?

Answer:

Waste:

Waste is a material which has been used up.

We usually throw away bottles, cans, wrappers, broken things or worn out house hold. But nearly three quarters of what we throw can be used again. Because thousand of bottles, metal, glass thrown away can be used again and can be used to make something else from it.



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Steps for better disposal:

- (1) Recycling of non-renewable resource
- (2) Paper wastes can be recycled.
- (3) Maximum recycling help to solve the problem of pollution.
- (4) Glass, plastic and metal can be recycled.
- (5) Recycling of these materials is cheaper than forming it from its raw material.

* * *

Question: 8

What do you mean by recycling? How is this recycling business going on in nature? Explain with reference to water cycle and carbondioxide cycle in nature?

Answer:

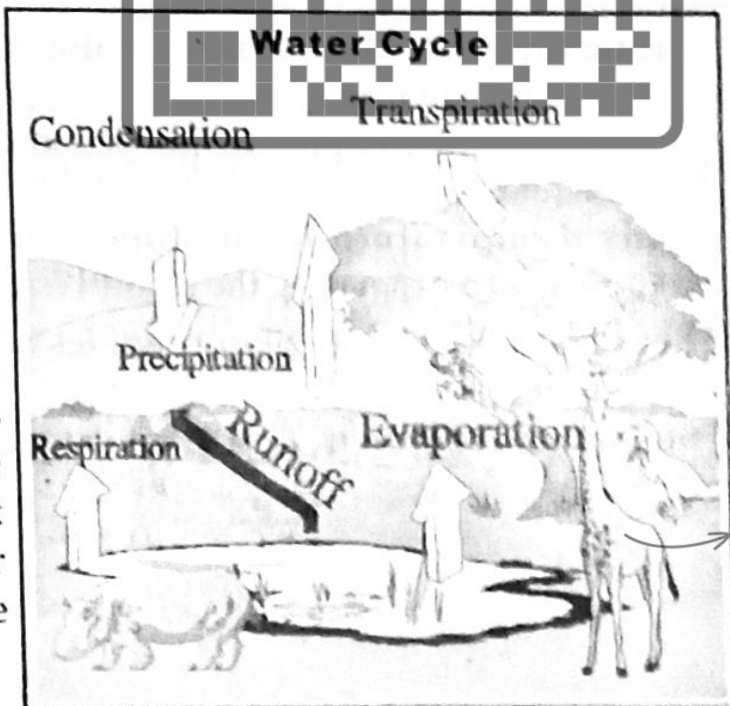
Recycling:

Recycling means turning materials from old or broken things into new goods. A cycle is a series of steps or that sooner lead back to where they started. Many materials in nature go through these cycles. Without this recycling the limited and scarce supplies of many materials will be used up.

Water Cycle:

Definition: The natural cycle in which water is evaporated from the sea and eventually is returned as rain.

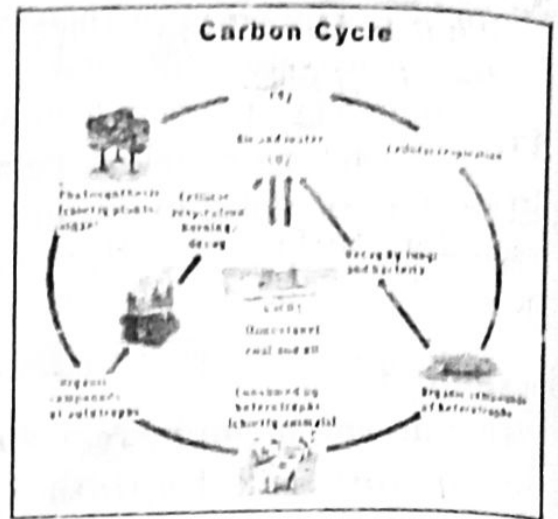
Explanation: Water plays a vital role and is the most common compound on the earth. Water is evaporated from the sea, lakes, rivers in the form of water vapours. It rises into the air when temperature of air cools down, water vapours condense and form tiny drops of liquid water and falls as rain. This finds its way to the rivers and so back to the sea. Plants also return water to the air through leaves. This cycle continues naturally.



Carbondioxide Cycle:

Definition: A continuous process in which carbondioxide from the air is taken in by plants to build up their tissues by photosynthesis and is later returned to the air as a decomposition product of the plants or of the animals which have eaten them.

Explanation: The carbon comes from CO_2 present in atmosphere. Plant takes it from air and convert it into carbohydrates. Animals eat plant and get carbon. Animal exhale CO_2 and decomposers also set the CO_2 free from the bodies of dead organisms. CO_2 is returned to air by combustion as well which occurs when a wood or petrol is burnt. Photosynthesis consumes this CO_2 and releases oxygen to maintain the balance in the atmosphere.



Question: 9

Write five functions of Skin.

Answer:

The skin is the outer covering of the body. Skin performs the following functions:

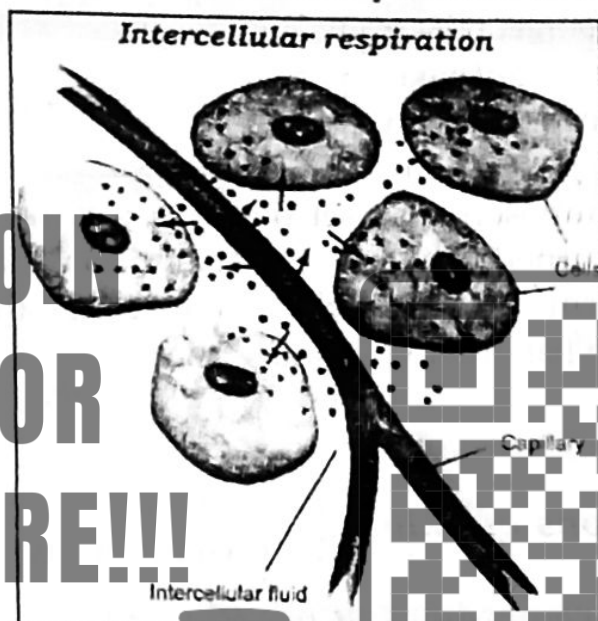
- 1- **Protection:** The skin is the first line of defense against pathogens and toxins in the environment.
- 2- **Sensation:** Skin can provide protection from injury and can protect injured areas while healing.
- 3- **Body Temperature Regulation:** Skin controls body temperature by contracting or expanding the blood vessels in the skin.
- 4- **Evaporation Control:** Skin provides a barrier to prevent fluid loss and dehydration.
- 5- **Storage and synthesis:** Acts as a storage center for lipids and water.

Question: 10

What is Breathing? With the help of a diagram describe Cellular Respiration?

Answer:

Breathing: The breathing or gaseous exchange take place through the respiratory surface by diffusion, either directly or through some transport medium like blood. It does not involved any release of energy.



Cellular respiration: It is the oxidation of food taking place within the cells by the help of enzymes. It involves the release of energy. Cellular Respiration take place within the body. It requires oxidation of enzymes. It does not require high temperature and fame. Energy is release but not only in the form of heat. During cellular respiration, energy is stored in the form of ATP.

* * *



Chapter - 4

Man and Health

Section-I : Multiple Choice Questions (MCQ's)

1. We eat food to:

- a) Satisfy hunger
- b) Get Energy ✓
- c) Enjoy Taste
- d) Live Longer

2. Best food means:

- a) Well cooked food
- b) Rich food
- c) Simple food
- d) Balanced food ✓

3. Wheat, rice and maize provide:

- a) Vitamins
- b) Proteins
- c) Minerals
- d) Carbohydrates ✓

4. Fruits and vegetables are the sources of:

- a) Proteins
- b) Mineral and Vitamins ✓
- c) Fats
- d) Carbohydrates

5. Which of the following foods represents a balanced diet.

- a) Fish
- b) apple
- c) Eggs
- d) Milk ✓

6. People living in cold regions of the world must take more of:

- a) Cereals
- b) Fats ✓
- c) Eggs (protien)
- d) Vitamins & Fruits

7. Human nervous system contains:

- a) Heart
- b) Liver
- c) Spinal cord nerves ✓
- d) Brain, glands & Kidneys brain

8. During emergencies thyroid gland is responsible for controlling:

- a) Circulation of blood
- b) Heart beat
- c) Excretion of water by kidneys
- d) Digestion of Food

9. The insulin hormone is secreted by the gland known as:

- a) Pituitary
- b) Para thyroid
- c) Pancreas ✓
- d) Adrenal

10. Obesity is caused by:

- a) Lack of exercise
- b) Physical work ✓
- c) Mental work
- d) Poor food

11. Beri Beri is caused due to lack of:

- a) Proteins
- b) Minerals
- c) Vitamin B ✓
- d) Over eating

12. 1 gm of Fat can release energy _____ to/than 1 gm of carbohydrate

- a) Equal
- b) less
- c) Twice ✓
- d) half

13. Protoplasm contains about _____ of proteins.

- a) 5%
- b) 15% ✓
- c) 25%
- d) 75%

14. The nutrients which does not provide energy to the body are :

- a) Carbohydrates
- b) Fats
- c) Proteins
- d) Vitamins ✓

15. Vitamin - A is found in :

- a) Citrus fruits
- b) Milk ✓
- c) Fish Oil
- d) Oil

16. Deficiency of Vitamin - D cause:

- a) Night blindness
- b) Bery-Bery
- c) Scurvy
- d) Rickets ✓

17. Scurvy is a disease which is associated with:

- a) Difficulty to see in dimlight or at night
- b) Gum bleeding ✓
- c) Soft bones
- d) Fats

18. The Co-ordination of muscles is associated with which part of brain?

- a) Cerebellum ✓
- b) cerebrum
- c) Spinal Cord
- d) Medulla

19. The glands without ducts are called?

- | | |
|-----------------------|--------------------|
| a) Endocrine glands ✓ | b) Salivary glands |
| c) Adrenal glands | d) No one is right |

20. The hormone secreted by Thyroid gland is :

- | | |
|---------------|--------------|
| a) Insulin | b) Adrenalin |
| c) Thyroxin ✓ | d) Cortisone |

21. Insulin is produced by :

- | | |
|--------------------|------------------|
| a) Thyroid gland | b) Adrenal gland |
| c) Pituitary gland | d) Pancreas |

22. People used to live in cold regions must take :

- | | |
|----------------|-----------------------|
| a) More fats ✓ | b) More Vegetables |
| c) More fruits | d) More carbohydrates |

Section-II : Short Answer Questions

Question: 1

Explain the following terms:

- | | | |
|-----------------|------------------------|----------------|
| (i) Food | (ii) Lipids | (iii) Minerals |
| (iv) Nutrients | (v) Vitamin deficiency | (vi) Glands |
| (vii) Hormones. | | |

(i) Food

Answer:

"Any substance that will give material for energy, for growth, for repairs and for efficient working of the body" is called food.



(ii) Lipids

Answer:

Fatty substances, including cholesterol and triglycerides, that are present in blood and body tissues, examples, fats, oils, waxes and steroids.

(iii) Minerals

Answer:

Minerals make up Earth's rocks, sands, and soils. They are found on Earth's surface as well as deep underground. Minerals are inorganic substances, meaning that they do not come from an animal or a plant.

(iv) *Nutrients*

Answer:

The word Nutrient has been derived from the word "Nutrine" means to nourish. They are chemical substances which is required by our body. They provide energy. The fuel of life repairs body cells and generates new body cells.



(v) Vitamin Deficiency

Answer:

When a diet is lacking in a vitamin, its absence may cause, is called a Vitamin deficiency disease.

Example: The deficiency of vitamin B 'Thiamine', in our food causes the disease known as Beri Beri.

(vi) Glands

Answer:

An organ which secretes or separates some peculiar product from the blood of animals.

OR

A group of special cells that make substances, so that, other parts of the body can work. For example, the pancreas is a gland that releases insulin, so that, other body cells can use glucose (sugar) for energy.

(vii) *Harmones*

Answer:

A substance produced by a ductless gland and passed around the body in the blood are known as hormones. Different hormones have different uses in the body, e.g. thyroxine influences growth.



Question: 2

Explain the major components of food?

Answer:

The major components of food are as follows:

- | | |
|-------------------|--------------|
| (1) Carbohydrates | (2) Fats |
| (3) Protein | (4) Vitamins |
| (5) Minerals | (6) Water |

Question: 3

What are deficiency disease?

Answer:

Any disease caused by a lack of essential nutrient (as a vitamin or minerals).

Question: 4

How would you make up for deficiency diseases?

Answer:

- (1) By taking proper balance diet.
- (2) Extra supplements of calcium, multi vitamins etc.
- (3) Eating proper diet containing all groups of food e.g. proteins, vitamins, fats and minerals etc.
- (4) Seeking medical advice.

Question: 5

If a child does not get calcium and phosphorus in his food, can you predict the ill effects on his health.

Answer:

Yes, because our bones are made up of calcium and if a person intakes less amount of calcium from the food a person may develop diseases of bones. Phosphorus is found in blood, muscles, nerves, bones and teeth. A deficiency might cause improper growth of brain and bones, softness in joint and falling of teeth.

Question: 6

Explain, what is a balanced diet?

Answer:

The diet which contains all the nutrients, carbohydrates, fats, proteins, vitamins and minerals is known as Balanced diet. These nutrients are essential for the proper growth of the body. Balanced diet not only satisfies a person's nutritional requirements but it also contributes to a person's overall fitness.



Question: 7

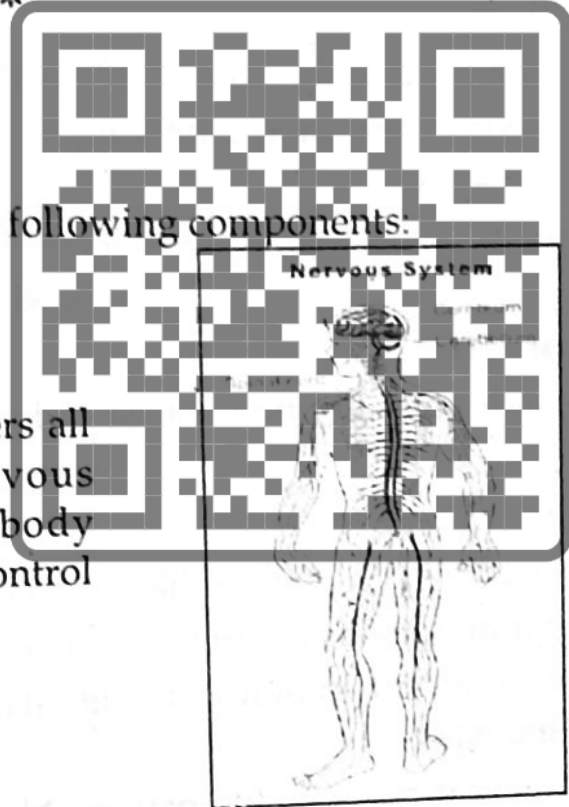
What is nervous system?

Answer:

The nervous system comprises of the following components:

- (1) Brain
- (2) Spinal Cord
- (3) Nerves

A large network of nerves that covers all parts of the body. Together the nervous system helps different parts of our body communicate and allows our brain to control what is going on.



Question: 8

What is First Aid?

Answer:

"First Aid means giving aid at the site of an accident, until an expert can look at the injury and give treatment".

OR

First aid means "emergency care or treatment given to an ill or injured person before regular medical aid can be obtained".



Question: 9

In case of a dog bite what measures would you take as first aid?

Answer:

Dog Bites:

Dog bites may be serious, not only because of infection, but because rabies may be transmitted if the animal is suffering from it.

Aims of First Aid

- To prevent rabies, or other infection.
- To obtain medical aid.

Management

- (1) Great care should be taken to Saliva the salwa away from the wound and not into it.
- (2) Wash the wound throughly with a strong solution of soapy water
- (3) Cover with a dry, sterile dressing.
- (4) Splint the limb.
- (5) Obtain medical aid and / or send patient to hospital.

* * *

Question: 10

How will you administer first aid to a victim of snake bite?

Answer:

Snake Bite

Of the 2,500 different species of snakes, only 200 are poisonous to man. Even if an individual is bitten by a poisonous snake, there is a good chance that only an insignificant amount of venom has been injected.

Aim of First Aid:

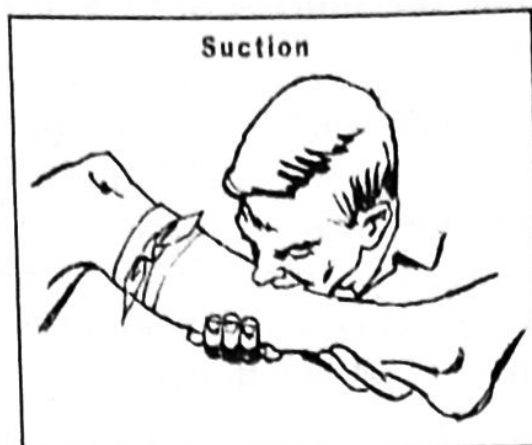
- To calm and reassure the patient. Many people die, not from effect of the venom, but from fright.

Warning: No attempt should be made to incise the wound, nor to suck out the venom with the mouth or by a breast pump. This is ineffective and may be harmful.

Management

- (1) Lay the casualty down. Put him at absolute rest. On no account should he be allowed to walk; If a stretcher is not available, one should be improvised.

- (2) Tie a handkerchief lightly above the area of the bite. It is most important that is applied with just sufficient pressure to obstruct the veins - no more; loosen it for one minute every half an hour.
- (3) Wash away all venom from the surrounding area of the wound with soap and water.
- (4) Flush the wound with large quantities of soapy water.
- (5) Cover with a sterile dressing.
- (6) Obtain medical aid and / or send patient to hospital.



Question: 11

Write names of 4 hormones produced by glands.

Answer:

Following are the hormones produced by glands.

1. The hormones secreted by the thyroid glands is called thyroxin.
2. The adrenal medulla produces a hormone called adrenalin.
3. Pituitary gland secretes a number of hormones one of them is known as growth hormones.
4. Pancreas also secretes hormone named insulin.

Question: 12

Define scurvy.

Answer:

Scurvy is the disease in which gums bleed. This disease is caused due to the deficiency of Vitamin C in the food.

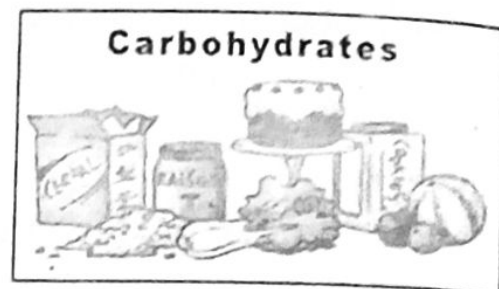


Question: 13

Define the sources of carbohydrates.

Answer:

All cereals such as wheat, maize, barley, rice etc are good sources of carbohydrates. Besides that potatoes, sweet potatoes, sugar, beet, banana, mangoes, melons, cheeko and milk are rich sources of carbohydrates.

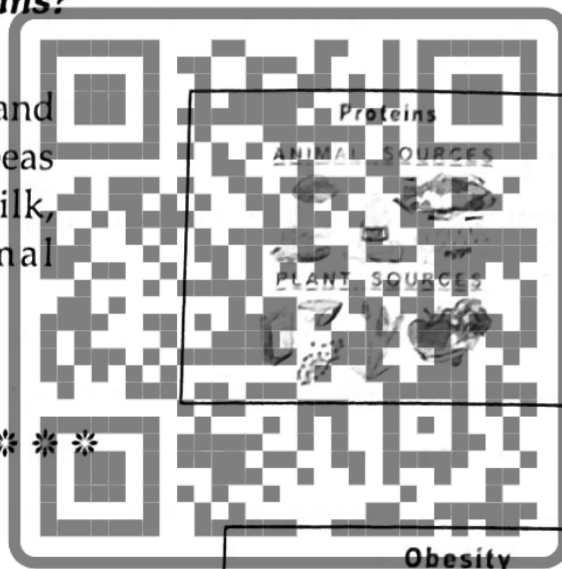


Question: 14

What are the sources of proteins?

Answer:

We get proteins from plants and animals. Pulses, beans, grams and peas are called plant proteins. Meat, milk, eggs and fish are called animal proteins.



Question: 15

Define Obesity.

Answer:

Obesity is one of the common disease found particularly at young age. This disease is related to the factors of health and fitness. A person will be called fat, if his weight is not proportional to his height. The body in the form of fat around the abdomen will be gradually bulging out. The body will become weighty and the person will feel difficulty in moving and walking is known as obesity e.g blood pressure, heart attack etc.



Question: 16

Define Anaemia.

Answer:

Anaemia is another disease which is caused by the deficiency of iron in the diet. Iron is needed to form the haemoglobin in red blood cells

OR

Condition where blood is poor, often due to the lack of iron.

Question: 17

Define Aging.

Answer:

The cells of the body do not remain young and active throughout life. With the passage of time they are deteriorated and becomes, less active. This process of deterioration with time, is called Aging.

Question: 18

Define Names of different stages of life.

Answer:

Names of different stages of life are:-

- (1) Baby Hood: From birth and goes upto 2 years.
- (2) Early child hood: From 2-5 years.
- (3) Late Child Hood: From 5-11 years.
- (4) Adolescence: From 11-17 years.
- (5) Adult Hood: From 18-21 years.
- (6) Aging: After the age of sixty (60).

Question: 19

Name some minerals found in human body.

Answer:

Important minerals essential for human body are:-

- | | | |
|---------------|-----------------|---------------|
| (1) Calcium. | (2) Phosphorous | (3) Potassium |
| (4) Chlorine | (5) Sodium | (6) Sulphur |
| (7) Magnesium | (8) Iron | (9) Iodine |

Question: 19

What are the sources of vitamins?

Answer:

S.No.	Name of the Vitamins	Food Sources
1.	Vitamin A	Yellow foods, green vegetables, liver.
2.	Vitamin B ₁	Eggs, liver, grains (cereals) Beans
3.	Vitamin B ₆	Grains, Milk, Liver
4.	Vitamin B ₁₂	Liver, Fish, Milk and Eggs
5.	Vitamin C	Citrus Fruits, Tomatoes, Cabbages.
6.	Vitamin D	Liver, Fish oils.
7.	Vitamin K	Green Vegetables.

Section-III : Detailed Answer Questions

Question: 1

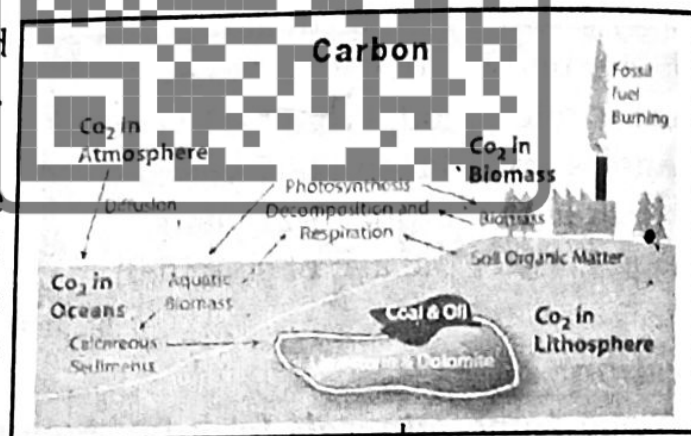
What are the basic building elements? Describe in detail the role of the carbon in our daily life?

Answer:

Oxygen, nitrogen, hydrogen and carbon are the basic building elements.

Carbon:

An element, often called 'the backbone of life'. It is present in all living matter. As an element it occurs naturally as diamond and graphite which crystallize in different forms.



Role of Carbon in Our Daily Life

- (1) Carbon is an element which forms all the organic compounds and carbon dioxide which are essential for life.
- (2) Carbon and its compounds make up our fuels such as coal, coke, wood, oil and natural gas.
- (3) Our foods, clothing dyes and drugs contain carbon.
- (4) Carbon dioxide gas is one of the compounds of carbon, is available in air.
- (5) Carbon is very important for the industrial progress of a country.

Question: 2

Differentiate between photosynthesis and respiration. Discuss their importance.

Answer:

Photosynthesis	Respiration
(1) Plants prepare food for themselves in the presence of sunlight and chlorophyll from the carbon dioxide of the atmosphere and water. The food prepared by plants is comprised of mainly starch. The excess of strach is stored in various parts of the plant e.g. stem root and leaves.	(1) It provides us energy for performing the various activities of life i.e.. movement growth , respiration, reproduction.
(2) We eat these parts of plant as food or medicine.	(2) For achieving this purpose energy is stored in our food.
(3) Due to photosynthesis plants grow, increase in size and thickness and are used as fuel.	(3) Due to the process of respiration, the energy of food is given out as heat energy.
(4) We eat the food prepared by the plants and it supplies us energy which helps us in our growth and performing various activities of life.	(4) Moreover, a part of this energy is utilised for keeping our body warm.
(5) Atmosphere is kept clean due to the process of photosynthesis during which carbon dioxide is absorbed and oxygen is released.	(5) In case of warm blooded animals like man this heat is utilised to keep body at a particular temperature.
(6) Carbondioxide absorbs the heat of the sun due to which the temperature of the atmosphere is kept low.	(6) In case of cold blooded animals and plants, this heat is lost into the atmosphere as sun as it is produced in the body.

Importance of Photosynthesis

Photosynthesis is very important for our life due to reason given below.

- (1) Plants prepare food for themselves in the presence of sunlight and chlorophyll from the carbon dioxide of the atmosphere and water. The food prepared by plants is comprised of mainly starch. The excess of strach is stored in various parts of the plant e.g. stemroot and leaves.



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- (2) We eat these parts of plant as food or medicine.
- (3) Due to photosynthesis plants grow, increase in size and thickness and are used as fuel.
- (4) We eat the food prepared by the plants and it supplies us energy which helps us in our growth and performing various activities of life.
- (5) Atmosphere is kept clean due to the process of photosynthesis during which carbon dioxide is absorbed and oxygen is released.
- (6) Carbondioxide absorbs the heat of the sun due to which the temperature of the atmosphere is kept low.

Importance of Respiration

Respiration is considered as an important process in life because.

- (1) It provides us energy for performing the various activities of life i.e., movement growth, respiration, reproduction.
- (2) For achieving this purpose energy is stored in our food.
- (3) Due to the process of respiration, the energy of food is given out as heat energy.
- (4) Moreover, a part of this energy is utilised for keeping our body warm.
- (5) In case of warm blooded animals like man this heat is utilised to keep body at a particular temperature.
- (6) In case of cold blooded animals and plants, this heat is lost into the atmosphere as sun as it is produced in the body.

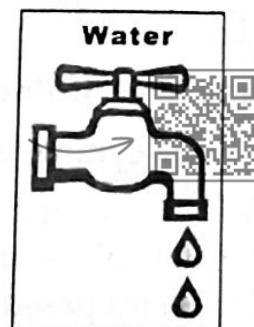
Question: 3

Water is essential for life. Why?

Answer:

Water is essential for life because of the following reasons:-

- (1) Water is a fundamental importance of all kinds of plants and animals and therefore, to man.
- (2) When you feel thirsty you take water.
- (3) Water is a very good solvent and dissolves various components of food.
- (4) Water helps in the exertion of harmful substance from the body.
- (5) Water has an important role in regulating the circulation of blood.



- (6) It is used for drinking purpose.
- (7) It is used for washing, bleaching, cooling, cooking, making steam to run engines and turbine to generate electricity.
- (8) Water also contains fluorine which helps to prevent tooth decay.
- (9) Water also dissolve some gases in it, such as carbondioxide, sulphur dioxide, hydrogen sulphide etc.
- (10) Water prevent one kindof golter, over-growth of the thyrold gland located in the throat.

* * *

Question: 4

What are minerals? Discuss their Importance in Agrlculture and Industrial development.

Answer:

Minerals

A substance occuring naturally in the earth and not containing living matter.

Example : Diamond, coal, clay, marble, oil.

OR Certain inorganic substances which are required by animals in their food are known as minerals.

Importance of Minerals in Agriculture and Industrial Development

Metals are an integral part of our day to day life. Industrial development plays an important role in the economic growth of a country. Pakistan is basically an agricultural country but it has also gained an important place in industrialized countries.

Elements play an important role in different industries. The industrial and agricultural importance of these elements are discussed below :

(1) Calcium

- (i) Calcium is used abundantly in cement, glass and enamel industries.
- (ii) Calcium in the form of calcium carbonate is used in the preparation of tooth powder and tooth paste.
- (iii) Calcium super phosphate is used in agriculture as a fertilizer.
- (iv) A large quantity of calcium carbide is used in calcium cyanamide and ammonia industries.
- (v) Calcium carbonate is used to remove sand and other contaminations while obtaining iron.

(2) Magnesium

- (i) Magnesium is mostly used in the form of an alloy.
- (ii) Railway compartments, balance beam, electric equipments and gears are made from an alloy.
- (iii) Magnesium is used in the form of ribbon to ignite the welding compound.
- (iv) Magnesium oxide is used in the manufacture of fire bricks.
- (v) Magnesium sulphate is used in dyeing, tanning and paint industries.

(3) Sodium

- (i) Sodium is being used in the manufacture of a synthetic rubber as a catalyst.
- (ii) Sodium is also used in the production of chemicals such as sodamide and sodium cyanamide.

Some Important Sodium Compound and their uses

(a) Sodium Hydroxide Or Caustic Soda

- Sodium hydroxide is extensively used in soap, paper and artificial silk industries.
- It is also used to purify petroleum and vegetable oils.

(b) Sodium Nitrate (Chile Salt Peter)

- It is mainly used in the production of nitric acid.
- Sodium nitrate is a good fertilizer which increases the fertility of land.

(c) Sodium Carbonate Or Washing Soda

- Sodium carbonate is also very important from the industrial point of view.
- It is used in the manufacture of glass, soap, cloth, paper and in other chemical industries.

(d) Sodium Bicarbonate

- The mixture of sodium bicarbonate and tartaric acid is used as baking powder.

(e) Sodium Thiosulphate

- It is used under the name of 'hypo' in developing and printing of photographic films.

(4) Iodine

- (i) Iodine is a good antiseptic agent.
- (ii) Iodine is used in the manufacture of different chemicals as dyes, potassium iodide and iodoform.
- (iii) Iodine is used in soap industry, for the determination of unsaturation of oil.

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(iv) The compounds of iodine such as sodium iodide and potassium iodide are used in most of the medicines.

(v) Iodine is also used in photographic films and insecticides.

(5) Chlorine

(i) Chlorine is extensively used to purify water from germs.

(ii) Chlorine is also used to manufacture many chemical compounds such as chloroform, hydrochloric acid and bleaching powder.

(iii) Chlorine is used to obtain gold and pure metals such as tin from its ores.

(iv) Compounds of chlorine such as sodium chloride, calcium chloride and magnesium chloride are extensively used in production of certain medicines.

(v) Poisonous gases, gun-powder, many types of dyes and medicines are also made from chlorine.

(6) Phosphorus

(i) Phosphorus is mainly used in match industry.

(ii) It is mixed with copper and tin to make an alloy which is water resistant.

(iii) Yellow phosphorus is used to make fire bombs and smoke screen during war.

(iv) Yellow phosphorus is also used in the preparation of certain medicines.

(v) Rat killing tablets are made by mixing white phosphorus with flour and oil.

(vi) Super phosphate is being used as artificial fertilizer.

(7) Sulphur

(i) Sulphur dioxide is made from sulphur which is used as bleaching agent and as an antiseptic.

(ii) Sulphur is very important in agriculture.

(iii) When sulphur is mixed and heated with calcium hydroxide it becomes an effective pesticide which sprayed at plants.

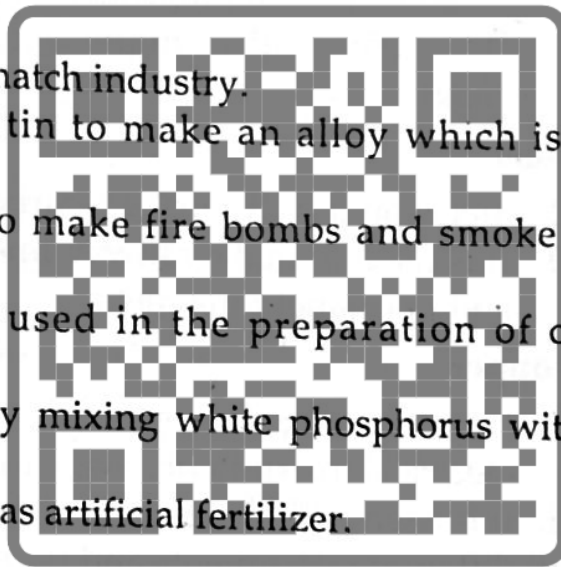
(iv) Sulphur is also used in match industry, gun-powder and paints.

(v) Sulphur is used as a drug in skin diseases.

(vi) Sulphur on burning, in rooms, acts as a germicide.

(vii) Calcium bisulphite is made from sulphur and is used in paper industry to make wood pulp.

(viii) Sulphur ailments are very effective in itching and in skin ailments.



(8) Iron

- The industrial importance of iron is dependent on the type of iron. There are three types of iron

(a) Cast Iron

- It is most impure form of iron which contains 15 to 4.5% carbon.
- Cast iron expands to small extent after its solidification from its liquid state.
- A lot of cast iron is used to manufacture steel.
- It is also used to manufacture stoves, parts of machines and radiators.

(b) Wrought Iron

- This is most purified form of commercial iron.
- It contains 0.12 to 0.25% of carbon.
- It can be drawn into sheets and wires.
- It is also used to manufacture rods, agricultural instruments and chains.

(c) Steel

- Steel contains 0.5 to 1.4% carbon.
- It is used to make railway lines, roof girders, parts of machines, knives and permanent magnets.

(9) Copper

- (i) Copper is a good conductor of electricity, so it is used to manufacture electrical instruments, wire and boilers.
- (ii) It is used to make coins and household utensils.
- (iii) different instruments and parts of machines are also made of copper.
- (iv) It is used in electroplating and electrotyping.
- (v) Copper sulphate is used in dye clothes, making ink and medicines.
- (vi) Copper sulphate mixed with calcium hydroxide, is used to destroy fungus.

Question: 5

What is the main function of each of the nutrients of food?

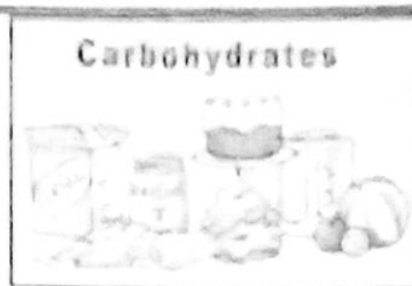
Answer:

Different foods contain different substances or materials which perform different functions to satisfy the needs of our body. These different materials needed by our body are called nutrients.

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(1) Carbohydrates

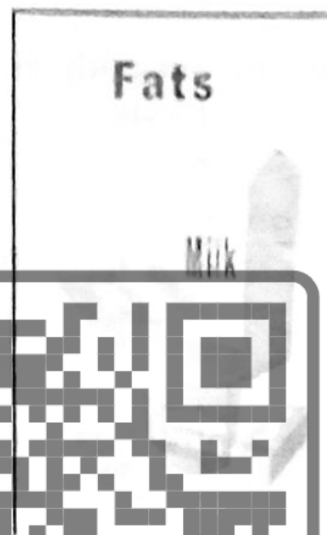
Carbohydrates are organic compounds and such they are obtained from plants. The main function of carbohydrates is that they provide energy for our body and in addition to that, carbohydrates are used to build new protoplasm or the living material in the cells. Carbohydrates such as sugar and starch are the easiest to be used by the body.



(2) Fats:

Fats are solid organic compounds. Fats are usually called "Lipids" by the nutritionists. Fats and oils are the best sources of energy for our bodies.

Fats and oils are the best sources of energy for our bodies. As such they are called energy foods. Excessive food is stored in the body in the form of fat which is used by the body to maintain a supply of energy for future use.



(3) Protein

Proteins are the organic compounds that contain carbon, hydrogen and oxygen.

Besides being a source of energy, proteins are used to build and repair protoplasm i.e. living material in the cells. The protoplasm contains about 15 percent of proteins.

Proteins help the growth of the body and help build muscles, blood and other tissues. The muscles, skin, hair and nerves contain protein.

(4) Vitamins

They are organic compounds which are needed in small quantities for the proper growth and development of the body.

There are different kinds of vitamins found in human food. Each kind of vitamin does its own kind of work and has its own special effect on the body.

Vitamin D is needed for the normal straight growth of the bones. Vitamins make the difference between good and poor health and even between life and death.

(5) Minerals

Minerals are those substances which are found in the earth's crust and are known as inorganic substances.

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Like vitamins, each mineral element helps to regulate certain processes taking place in the cell. Calcium and phosphorus are needed for teeth, good growth of the body and healthy bones.

(6) Water

Water is considered as a universal solvent. Being a good solvent, water dissolves in itself many of the nutrients.

Water also takes part in many of the chemical reactions taking place in the body. Without water all these chemical reactions could not take place. Water is obtained by our body not only when we drink water and beverages but also by eating some foods.

Question: 6

Mention at least five sources of food that help in growth.

Answer:

Balance diet means "A diet that contains the proper proportions of carbohydrates, fats, proteins, vitamins, minerals, and water necessary to maintain good health".

Keeping these points in mind, you can eat those foods that will you carbohydrates, proteins, fats, vitamins, minerals and water.

The key to healthy eating is to enjoy a variety of nutritious foods from each of the 5 food groups. If you eat a variety of foods from each of these groups, your body will receive all the nutrients and vitamins it needs to function.

The five food groups are:

Dairy:

The foods in this group are excellent sources of calcium, which is important for strong, healthy bones. Not many other foods in our diet contain as much calcium as dairy foods.

Fruit:

Fruit provides vitamins, minerals, dietary fibre and many phytonutrients (nutrients naturally present in plants), that help your body stay healthy.

Grain (cereal) foods:

Always choose wholegrain and/or high fibre varieties of breads, cereals, rice, pasta, noodles, etc. Refined grain products (such as cakes or biscuits) can be high in added sugar, fat and sodium.



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Lean meats and poultry, fish, eggs, tofu, nuts and seeds:

Our body uses the protein we eat to make specialised chemicals such as haemoglobin and adrenalin. Protein also builds, maintains, and repairs the tissues in our body. Muscles and organs (such as your heart) are made of protein.

Vegetables:

Vegetables should make up a large part of your daily food intake and should be encouraged at every meal (including snack times). They provide vitamins, minerals, dietary fibre and phytonutrients (nutrients naturally present in plants) to help your body stay healthy.

Question: 7

Describe the main functions of vitamins and Minerals.

Answer:

VITAMINS	Main functions for our bodies
1- Vitamin -A	Vitamin A is essential for vision, growth and functioning of skin etc.
2- Vitamin - B	Vitamin B is essential for the production of mature red blood cells, growth of muscles and circulation of blood.
3- Vitamin - C	Good for skin, hair, nails and teeth. It assists healing of wounds. The absorption of iron and amino acids takes place because of vitamin C.
4- Vitamin - D	It assist the absorption of calcium and phosphorus. Vitamin D is good for bones and prevents bone diseases.
5- Vitamin - E	Good for heart patients. Vitamin E is thought to be necessary for reproduction.
6- Vitamin - K	Vitamin K is essential for the production of Prothrombin.

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MINERAL	Main functions for our bodies
1 - Calcium:	<ul style="list-style-type: none"> • Essential for building strong healthy bones and teeth • Helps muscle contraction and nerve function • Helps blood clotting
2- Chromium:	<ul style="list-style-type: none"> • Helps with normal growth • Plays a role in controlling blood sugar levels
3- Copper.	<ul style="list-style-type: none"> • Joins with iron in formation of red blood cells • Helps with the functioning of the nervous system
4- Fluorine / Fluoride:	<ul style="list-style-type: none"> • Helps with the structure of healthy bones and teeth • Decreases the chance of dental caries • Helps in the prevention of osteoporosis
5- Iodine:	<ul style="list-style-type: none"> • Promotes normal thyroid function • Helps brain function and normal growth
6- Iron:	<ul style="list-style-type: none"> • Helps red blood cells carry oxygen around the body • Prevents anemia
7- Magnesium:	<ul style="list-style-type: none"> • Provides structure for healthy bones • Involved in the release of energy from food • Essential for muscle and nerve function
8 - Manganese:	<ul style="list-style-type: none"> • Helps in the formation of healthy bones • Helps in the processing of carbohydrates, cholesterol and protein
9 - Phosphorus:	<ul style="list-style-type: none"> • Works with calcium in the formation of strong healthy bones and teeth • Helps the body to store and use energy

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10 - Potassium:	<ul style="list-style-type: none">• Controls nerve impulses and muscle contractions• Helps maintain fluid balance
11 - Sodium/Salt:	<ul style="list-style-type: none">• Controls nerve impulse transmission• Helps maintain water balance

Question: 8

What are endocrine glands, and their functions?

Answer:

Endocrine Glands

The Endocrine system in man is comprised of different ductless glands known as Endocrine glands. They are called ductless because they do not have ducts.

Names of Endocrine Gland

The most important endocrine glands of man are given below:-

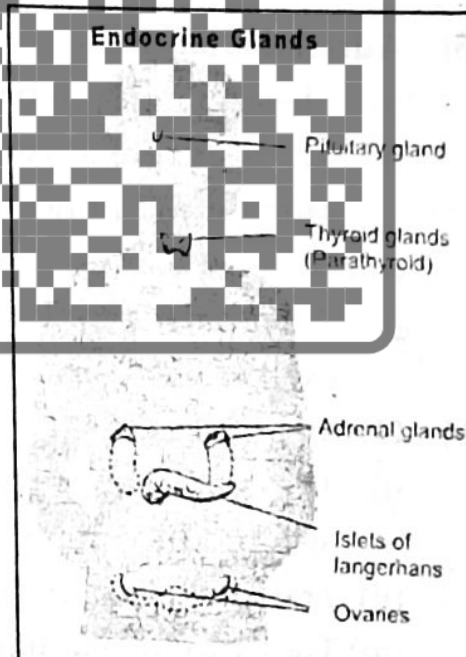
- | | | |
|---------------------|-------------------|-----------------------|
| (1) Pituitary Gland | (2) Thyroid Gland | (3) Parathyroid Gland |
| (4) Pancreas | (5) Adrenal Gland | (6) Ovary and Testis |

Function of Endocrine Glands

1) Pituitary Gland:

- Pituitary gland is a round or oval organ attached to the base of fore-brain.
- It produces, at least nine hormones.
- Some of these hormones act on other endocrine target glands e.g Thyroid glands, Adrenal gland, Ovary and Testis
- This gland is called master gland of the body.
- Other pituitary hormones control body growth, body colour, master blood pressure and also affect metabolism.

Endocrine Glands



2) Thyroid Gland:

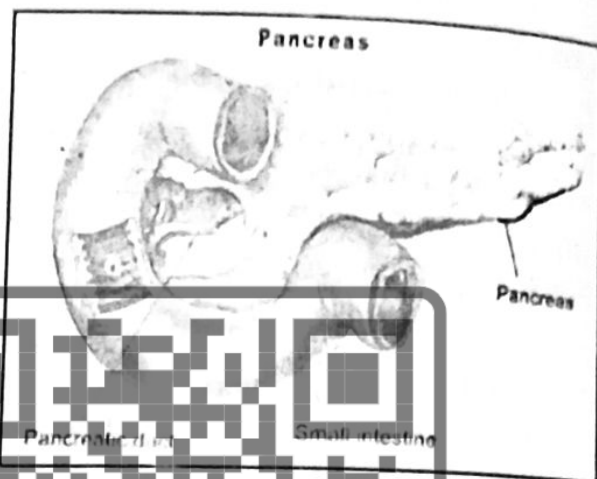
- Thyroid gland is a paired organ located in the upper region of the neck in front of wind pipe.
- It produces the hormone Thyroxine.
- Iodine is required for the synthesis of thyroxine.
- Iodine is important in the metabolism of all cells of the body.
- A child with thyroxine deficiency does not grow to normal size.

3) Parathyroid Gland

- (i) The parathyroid glands are embedded in the Thyroid Gland.
- (ii) The hormone of parathyroid gland regulates the level of calcium and phosphorus in bones and blood.
- (iii) It also controls the secretion of these substances from the body.

4) Pancreas:

- (i) The pancreas is a large gland located near the stomach.
- (ii) It produces digestive enzymes.
- (iii) It also has island of ductless known as Islets.
- (iv) The Islets produce the hormones Insulin and Glucagon.
- (v) The function of these hormones is to control sugar level in blood by affecting its uptake in cells of liver.



5) Adrenal Gland:

- (i) These glands are paired and lie in abdominal cavity above the kidneys.
- (ii) They secrete several steroid hormones which regulates the level of glucose and minerals.
- (iii) Adrenal glands also produce a hormone Adrenaline.
- (iv) Adrenaline helps in controlling situations of anger, fear and excitement.

6) Ovary and Testis

- (i) These are not only reproductive organs which produce gametes, but, also produce many steroid hormones.
- (ii) The function of ovaries is to produce eggs.
- (iii) They produce female sex hormones known as Estrogens.
- (iv) These hormones control the sexual behaviour in girls.
- (v) They also secrete male sex hormones known as Androgens which help in development of boy hood.

Question: 9

Why it is necessary to take exercise?

Answer:

By taking exercise regularly, we can have the following benefits:-

- (1) The muscles will become healthy and strong.
- (2) The muscles will get enough energy and other nutrients through proper circulation of blood.
- (3) The blood circulate faster and freely as the blockages are removed by taking exercise.
- (4) The person who takes exercise daily and regularly remains active, healthy and enthusiastic, and overcome obesity.
- (5) Through exercise the extra fat is consumed up and does not store in the body.
- (6) The rate of respiration increases which allows more and more intake of oxygen in the lungs, while taking exercise.
- (7) Through exercise the person does not feel any exertion and fatigue.
- (8) If the body is healthy, the mind is healthy.

In short exercise makes man healthy, active and disciplined.

"Health is wealth"

Question: 10

Describe as to how does prayer contribute to good health.

Answer:

The prayer contribute to good health are as follows:-

- (1) Prayer involves the exercise of muscles, nerves, tissues, bones, joints and stomach.
- (2) The prayer is a source of good health and hygiene.
- (3) While offering prayer standing (Qiyam) provides exercise for muscles and bones.
- (4) Going in Sajda involves movements of muscles, nerves, joints, eyes and head.
- (5) In Sajda the brain, and facial parts of the body get enough blood and enough oxygen.
- (6) The brain also gets fresh blood and oxygen.
- (7) All the parts of the body are moved and get adequate amount of blood.
- (8) By offering prayer five times a day one improves his circulatory, respiratory systems as well.

Question: 11

Why do all living organisms need food?

Answer:

We all need food because of the following reasons.

- 1) It provides us energy.
- 2) It repairs the older body cells and form new ones.
- 3) It provides essential material to make protein and enzymes.
- 4) It also provides materials to maintain various processes of life such as reproduction, respiration etc.
- 5) Food drives essential living processes and brings out chemical changes in living organisms.

Question: 12

Draw a labelled diagram of the human Brain and write the names and functions of the three parts of Brain.

Answer:

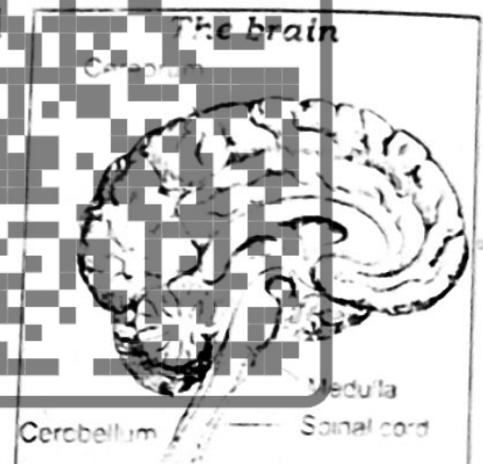
Parts of Brain

1. Cerebrum, 2. Cerebellum, 3. Medulla.

1. **Cerebrum:-** The area for thought, memory and feeling is located in the front part of the cerebrum. The area for hearing is located at the side of the cerebrum, and that for sight is located in the rear part.

2. **Cerebellum:-** It is the centre for coordination of muscles.

3. **Medulla:-** The medulla helps to control the vital acts like breathing and heart beat on which life itself depends.



Question: 13

What first aid should be given to a person needing it in the case of a broken bone?

Answer:

In the case of a broken bone. Following steps are taken as first aid.

- (i) If the doctor is nearer, call him at once.
- (ii) It is better that the doctor may come to the injured.
- (iii) In case you are far away from a doctor, then take the injured person to the doctor.



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- (iv) Must splint the arm or leg.
- (v) In case the bone has been broken through the skin then the doctor must be brought to the scene.
- (vi) Be sure to pad the injured part with band kerchiefs or any cloth.
- (vii) Tie a cloth bandage around the splints.



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Chapter - 5

Diseases, Causes and Prevention

Section-I : Multiple Choice Questions (MCQ's)

1. **Malaria is caused by:**

- a) Virus
- b) Bacteria
- c) Fungi
- d) Protozoan ✓

2. **Goitre is caused by:**

- a) Endocrine malfunction ✓
- b) Viral infection
- c) Bacterial infection
- d) Nutritional deficiency

3. **Which one is viral disease:**

- a) Small Pox ✓
- b) Tetanus
- c) Typhoid
- d) Cholera

4. **BCG vaccine is used for treatment of:**

- a) Influenza
- b) Tetanus
- c) Tuberculosis ✓
- d) Hepatitis

5. **Influenza is caused by:**

- a) Air ✓
- b) Drinking water
- c) Mosquito
- d) Shake hand

6. **Body fluid containing the enzyme lysozyme:**

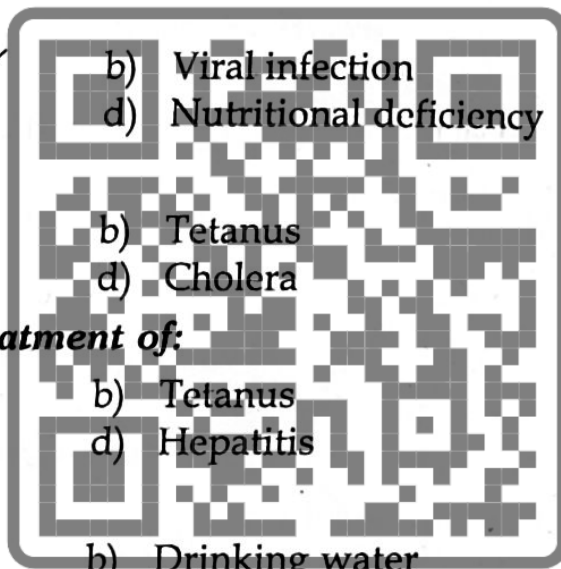
- a) Saliva
- b) Gastric Juice
- c) Pancreatic Juice
- d) Tears ✓

7. **Heroin is a:**

- a) Stimulant
- b) Hallucinogen
- c) Narcotic ✓
- d) Causative drug

8. **A type of psychosis:**

- a) Schizophrenia ✓
- b) Anxiety
- c) Hysteria
- d) Depression



9. Which of the disease is not caused by viruses?

- a) Polio
- b) Typhoid ✓
- c) Flue
- d) Measles

10. Ameobic dysentery is caused by :

- a) Parasites ✓
- b) Viruses
- c) Bacterias
- d) Fungus

11. MMR is the Vaccine against :

- a) HiV/AIDs
- b) Hepatites
- c) Measles ✓
- d) Small pox

12. Jaw-lock is caused by :

- a) Cholera
- b) Typhoid
- c) Tetanus ✓
- d) Diptheria

13. Malaria is caused by :

- a) Vibrio cholerae
- b) Variola
- c) Mycobacterium
- d) Plasmodium ✓

14. Which disease is caused by blood transfusion?

- a) Tuberculosis
- b) Diptheria
- c) AIDS ✓
- d) Typhoid

15. Heroin is :

- a) A Stimulant
- b) A depressant
- c) Narcotics ✓
- d) None of these

16. Goitre is caused by :

- a) Viral Infection
- b) Hepatitis
- c) Mal function of endocrine gland ✓
- d) Improper diet

17. Which of the body fluid contain lysosome :

- a) Blood
- b) Gastric juice
- c) Tears ✓
- d) Bile

18. Diabetes is a disease caused by:

- a) Fungi
- b) Bacteria
- c) Viral ✓
- d) Protozoan



Section-II : Short Answer Questions

Question: 1

What are bacteria? Where are they found? Name three bacterial diseases and their causative agents.

Answer:

Bacteria

Bacteria are the simplest, true living forms. They are present every where in water, air and soil. They are often the cause of disease, but some kinds are very useful in the soil. They are all very small and occur in great numbers. They have 3 basic shapes.

- 1) Rod like bacilli
- 2) Round like cocci
- 3) Spring like Spirilla

Three bacterial diseases and their causative agents:

(1) Tuberculosis:

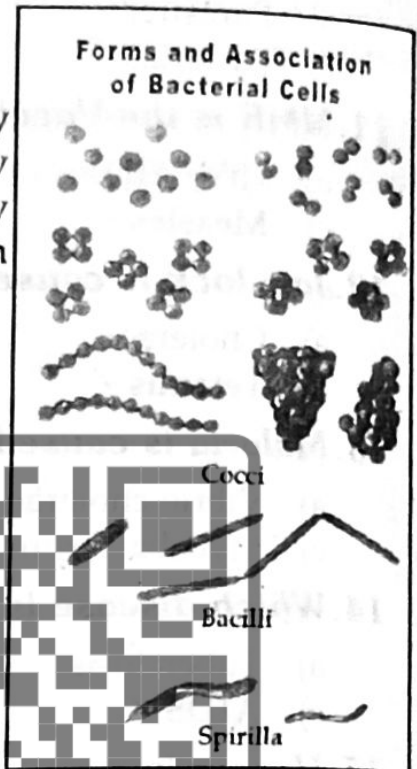
It is bacterial disease. It is a disease of the lungs. TB bacteria which make small swelling in the lungs.

(2) Typhoid

It is an acute infectious disease and it is caused by a bacterium *Salmonella Typhosa*.

(3) Cholera

It is very serious infectious disease of the digestive tract and it is caused by a bacterium *Vibrio Comma*.



Question: 2

Are all fungi parasites? Name two fungal diseases and the mode of their transmission.

Answer:

Fungi are simple unicellular as well as multicellular plants and they lack chlorophyll and cannot manufacture their food. Some of the fungi like yeast are unicellular and microscopic. Other fungi are large in size and visible with naked eye e.g Mucor, Penicillium and Mushrooms are common types of fungi. Few fungi are pathogenic which infect human body e.g Ring worms, Athletes foot etc.

Name of two fungal diseases are:

- 1) Athletes foot
- 2) Ring worm

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1) Athletes Foot

It is a skin infection caused by a fungus called Tinea.

Symptoms

- It is an example for the infection of skin and nails. This disease is very common in athletes who put on sweaty shoes for a long time.
- There is itching between the toes due to infection. The skin starts peeling and cracking.
- The nails get infected and become yellow, thick and brittle.

Sources of Infection

- The disease spreads directly from person to person by infected objects e.g towels.

Control

- One must sprinkle powder in shoes and then wash the foot and pat dry with towel before wearing it.
- A person should wear flexy and comfortable shoes.
- Pedicure is also good and hygiene.
- Apply antifungal ointments.

(2) Ring Worms

It is an infection of skin caused by a group of fungi. The fungi causing the disease are collectively known as Dermatophytes.

Symptoms:

The fungi, an attacking the skin cause localised lesions in the skin. Lesions assume circular form as growth of the fungus in the skin is more or less equal in all directions.

Control:

- Take bath regularly.
- Good sanitary conditions in local place.
- Can be caused by the external application of fungicide ointments.

Question: 3

What is contamination? How is drinking water and food contaminated?

Answer:

Contamination

Entry of undesirable organisms into some material or objects.

OR

The state of being contaminated or impure by contact or mixture, the state

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of having substance either foreign particles, chemicals or radio active substances which makes substance toxic.

Contamination of Food & Water :

When we either places the food outside instead of refrigerator or eat at dirty hands or when flies sit on it etc. Food gets poisonous because bacteria multiplies very quickly. If we will not preserves carefully or cover it carefully. In the same manner water can be contaminated through pollution, through industries wastes like lead, or when human or animals urinate inside water. Therefore we should boil water carefully before drinking it.

Question: 4

What are vectors? How do they transfer pathogens? Give example.

Answer:

Vectors

Vectors are carrier of germs.

OR

Any animal, which carries a disease causing germ.

Example:

Mosquito is a vector of malaria. Malaria is a disease caused by a very small animal, plasmodium, which gets into the blood as a result of a bite from a mosquito. It multiplies very quickly and causes a fever, which may end in death.

Question: 5

'God has gifted human beings with many defence systems.' Discuss.

Answer:

There are many bacteria and viruses around us which can cause different diseases. So God protects us from them through natural immunity. These organisms have antigens. When these antigenes enter our body, the body produces antibodies against them. Thus the body remains safe from the diseases in a natural way. Body defends against diseases in many of the following ways.

1. Skin does not allow the germs to enter your body.
2. Cuts bleed the germs are washed away by the running blood.

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3. Tears wash away the germs entering your eyes. Tears and other body fluids also contain a germ killing enzyme called lysozyme.
4. Tiny hair and mucus inside your nose entangle the germs and coughing and sneezing expels them out.
5. Digestive juices kill most of the germs which somehow enter the alimentary canal. Vomiting also does same job.
6. White blood cells engulf and destroy the germs.
7. Specific antibodies are formed in the blood to kill every type of germs in the body.
8. If all the above defenses fail to stop or kill the germs, a person falls sick and is given medicine and antibiotics to kill the germs and vaccine are given to develop immunity to avoid future infections.

Question: 6

What is drug abuse? Name the common narcotics and their effects.

Answer:

Drug abuse

People who abuse drugs for long time may become dependent on it. This is called drug addiction or drug abuse. Drugs are cure but their abuse is always injurious. It makes you drug addict.

The common narcotics and their effects are:-

Type of drug	General effects	Example
Stimulant	Excitement, anxiety and sleeplessness	Cocaine
Hallucinogen	loss of coordination, hallucination, abnormal behaviour and depression	LSD Marijuana
Depressant	Drowsiness, loss of co-ordination, slow reflexes and depression	Heroin, codeine, morphine and barbiturates.

Question: 7

What is opium? Describe its origin and importance.

Answer:

Opium

Opium is a highly addictive narcotic drug acquired in the dried latex form from the poppy plant.

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Origin and importance.

- (1) Morphine and codeine are both made from opium. Both are used as pain killers.
- (2) Heroin, a synthetic compound, made from morphine of opium, is now widely used narcotic drug in the country and the world over.
- (3) Codeine and barbiturates are also depressing addition drugs.

* * *

Question: 8

What is neurosis and psychosis? Describe their causes.

Answer:

Neurosis:

It is an illness resulting from some sort of psychological conflicts. It involves stimulation of autonomous system and affects a portion of mental functioning.

Causes:

Due to hysteria, anxiety, phobia or simply by depressions of any kind.

Psychosis:

It is a major mental disorder in which a person's ability to think and respond emotionally is so seriously impaired that he is unable to meet the ordinary demands of life.

Causes:

These mental disorders may appear due to aging, metabolic and nutritional disorders of infections or fear etc.

* * *

Question: 9

What is a disease?

Answer:

Anything which goes wrong with the body other than by an accident. It may be due to germs or to some part of the body not working properly.

OR

A disease is a condition that occurs, when your body goes out of balance, it is because normal functioning and internal environment has been altered by tissue damage caused by the formation of toxic substances.

* * *

Question: 10

What are viruses?

Answer:

Viruses:

These are the smallest disease causing agents. They are extremely tiny and cannot be seen without the help of electron microscope. No organism is safe from them as they cause diseases in all organisms from bacteria to large animals.

Question: 11

Name the diseases caused by the viruses.

Answer:

In man:

They cause Cold, Polio, Flu, HIV/AIDS, Small pox, Measles and Hepatitis (jaundice) etc.

In Plants:

They cause damage to leaves of potato, tomato, tobacco and cauliflower.

Question: 12

What are pathogens?

Answer:

Pathogens

Any plant or animal which causes disease e.g malaria germs in the blood. They have to depend on another organisms for their survival

OR

Pathogens are disease causing organism, they may be viruses, bacteria, fungi, protozoans or worms.

Question: 13

Define germs.

Answer:

The organisms, which cause disease may spread easily from one person to another, by entering his body through the nose, by breathing through mouth, by drinking or eating.

Question: 14

How do germs enter a human body?

Answer:

The method or ways, these organisms enter in human body are:-

- | | |
|----------------------------------|-----------------------|
| 1) By air | 2) By food and water |
| 3) By living organisms (animals) | 4) Through faeces |
| 5) Cut and scratches | 6) By contact (touch) |

Question: 15

Define immunity.

Answer:

The ability of a plant or animal to resist attacks of disease, e.g some men are immune to malaria.

Question: 16

Define vaccine.

Answer:

Vaccines are actually antigens with low toxicity rate. They are the inoculation of certain antigens (virus and bacteria) to induce the production of Antibodies for increasing immunity against diseases.



Question: 17

What is smoking?

Answer:

Smoking is inhaling the fumes of tobacco by lighting cigarettes, cigars, huqqa etc.

Question: 18

What are Narcotics?

Answer:

If drug like Heroin, Cocaine, and Marijuanas are misused by people old or young for getting pleasure then they are called Narcotics.



Question: 19

What is the effect of using drug in society?

Answer:

It should always be kept into consideration that misuse of drugs is very harmful. When such stage is reached, the addict feels that he can not live without the drug, then he feels bored and kills the desire by using more of it and more frequently. These drugs are very costly. So he begs and borrows for purchasing these medicines. Ultimately his family life and social life are ruined. So he becomes useless for the society.

Question: 20

What is nervous break-down?

Answer:

It is non-technical term applied to a wide range of mental disorders, usually marked by sharply decreased ability of the body to function properly and normally. These mental illnesses are of many types though two are common.

- 1) Neurosis
- 2) Psychosis

Section-III : Detailed Answer Questions

Question: 1

What is a diseases? What important factors are responsible for the spread of a disease? Name the groups of living organisms responsible for spread of diseases.

Answer:

Diseases

A disease is a condition that occurs, when your body goes out of balance, it is because normal functioning and internal environment has ben altered by tissue damage caused by the formation of toxic substances.

Factors are responsible for the spread of a disease

Diseases are caused mainly by the interaction of the following factors:

- 1) Living organisms for example viruses, bacteria, fungi or protozoans.
- 2) Dietary deficiencies for example, scurvy is caused due to the deficiency of vitamic C in the food.

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- 3) Hereditary factor for example haemophilia is a disease where blood keeps on flowing from a wound for a long time. It is an example of sex linkage and more common in men than women.
- 4) Endocrine malfunctioning for example, Goitre is the swelling of the thyroid gland in the neck.
- 5) Unknown factors for example, some forms of cancer.
- 6) Simply by ageing process for example, heart disease.

Groups of living organisms responsible for spread of diseases

The groups of living organisms which are responsible for spread of diseases are:

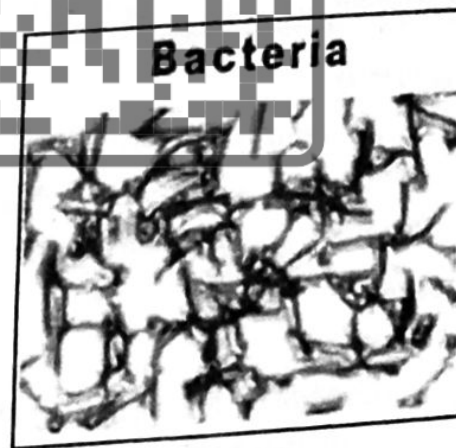
- | | | |
|------------|--------------------|---------------|
| 1) Viruses | 2) Bacteria | 3) Protozoans |
| 4) Fungi | 5) Parasitic worms | |

(1) Viruses:

- (a) These are smallest disease causing agents.
- (b) Viruses are 10 to 100 times smaller than bacteria.
- (c) Viruses are of many different types and shapes e.g Round, Rod-like and crystal like.
- (d) The body of virus consists of a central core of DNA.
- (e) They are parasite on other living organisms.

(2) Bacteria:

- (a) Bacteria are unicellular organisms.
- (b) They are present every where in water, air and soil.
- (c) They do not contain chlorophyll in their cells.
- (d) Many kinds of bacteria are harmless, whereas others cause diseases.
- (e) Some bacteria are helpful in preparation of cheese.



(3) Protozoans:

- (a) These are animals like single celled micro-organisms.
- (b) They are usually found in water.
- (c) Majority of these animals are independent but a few live in colonies.
- (d) Some are parasites and cause different diseases i.e Malarial parasite.
- (e) Some protozoa are beneficial as they feed on disease causing bacteria.

(4) Fungi:

- (a) Fungi are simple unicellular as well as multicellular, plants.
- (b) The chlorophyll is not present in Fungi.
- (c) Many Fungi cause diseases of plants e.g Smut and the Rust are the common diseases.
- (d) Fungi like hot and humid climate.
- (e) Some Fungi are useful e.g Mushrooms are used as food.

(5) Parasitic worms

- (a) Most of the worms are parasites.
- (b) Their body is elongated and limbless.
- (c) Worms like Ascaris are Known as round worms.
- (d) Thread worms cause infections e.g abdominal pains, vomiting etc.
- (e) Round worms are Free-Living as well as parasites of animals, man and even plants.

Question: 2

What are Viruses? Discuss their role in spread of diseases. Describe any three diseases caused by Viruses.

Answer:

Viruses

These are the smallest disease causing agents. They are extremely tiny and cannot be seen without the help of electron microscope.

Viruses role in spread of diseases

No organism is safe from them as they cause diseases in all organisms from bacteria to large animals.

Diseases caused by Viruses

Following are the three diseases caused by viruses:

(1) Polio (Poliomyelitis)

Causes:

Polio is known as Infantile Paralysis. This disease is caused by polio virus. The virus enters the digestive tract through the mouth from where it penetrates the blood vessels and finally reaches the nervous system where it destroys the nerve cells and cause paralysis.

Symptoms:

The initial symptoms of the disease are similar to those of common cold accompanied by fever, headache, the indigestion and also vomiting, stiffness of the neck, back paralysis and spasm of muscle.



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Control (Preventive Measures)

- (a) The patient suffering from poliomyelitis should be isolated and immediately hospitalized.
- (b) Physiotherapy treatment should be applied to restore the activity of affected muscles.
- (c) Infection is transmitted through nose and through discharges and faeces.
- (d) Children should be immunized against this disease with polio vaccine.

(2) Measles

Causes:

Measles is caused due to virus which enters the human body through respiratory tracts.

Symptoms:

- (a) When the virus enters into the blood stream the measles virus causes coughs, headache and inflammation of eye.
- (b) Spots in mouth are present for several days before the rash comes out and are diagnostic of measles.
- (c) The patient is often very ill and it affects adults more seriously than children.
- (d) The rash of measles consists of pink-brownish blotches spread all over the body. It begins to fade after a few days but the staining of the skin persists for a week or two.

Treatment:

No particular treatment for measles is required. Antibiotics are used for preventing secondary complications.

(3) Aids

Causes:

AIDS is caused by special virus. The virus is called HIV. The virus destroys the body defence system. Due to the defects in the defence mechanisms, various diseases can easily attack human body. AIDS virus is transmitted through infected blood and vaginal secretion.

Symptoms: Few major of Aids

In the beginning, there may be symptoms like common cold which is usually not noticed. The patient may then remain symptoms free for months for years but gradually develop fledged disease.

Loss of more than 10% body weight occurs. Persistent diarrhoea remains for more than a month, cough becomes persistent. Big red spots appear on the body.

Treatment Protection of Virus or Aids

- (a) Always remain limited to your Spouse.
- (b) Insist on new and unused disposable syringes.
- (c) In case blood is to be transmitted, it should be ensured that the blood does not contain AIDS virus.

* * *

Question: 3

What is hepatitis? What are its types? Name the causative organisms, symptoms, and measures to be taken for cure and prevention of hepatitis.

Answer:

Hepatitis:

It is the inflammation of the liver. It is also a recent spreading and feared disease. It is caused by a number of Hepatitis viruses designated as A, B, C, D, and E viruses respectively.

Types of Hepatitis

It is the inflammation of the liver. It is also a recent spreading and feared disease. It is caused by a number of Hepatitis Viruses designated as A, B, C, D and E Viruses respectively.

Hepatitis A:

It is most common and is called infectious hepatitis. It is transmitted by faecal contaminated water and food. It grows in intestine and spread to liver, kidneys and spleen. The disease is commonly called Jaundice.

Symptoms:

Hepatitis A causes fever, nausea, diarrhoea and chills accompanied by yellowing of the skin and eyes and dark yellow urine.

Treatment:

No specific treatment exists. It however, subsides in a few weeks.

Hepatitis B and C:

These are serious infections. Virus entering the blood by blood transfusions, contaminated syringes, Saliva, Sweat, breast milk, intra venous drugs and genital fluids.

Symptoms:

Some what resembles the symptoms of hepatitis, A.

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Treatment:

Two effective vaccines have been developed and majority of Hepatitis B and C infections are now cured.

Hepatitis- D:

This virus called delta antigen is usually accompanied in patient with hepatitis-B and adds to the seriousness of the infections.

Hepatitis- E:

Spread by faecal-oral transmission and is common in countries with poor sanitation. It some what resembles Hepatitis-A and does not cause chronic liver diseases.

* * *

Question: 4

What are pathogens? Name a few pathogenic protozoa or worms. Describe the diseases they cause.

Answer:

Pathogens

Pathogens are disease causing organism, they may be viruses, bacteria, fungi, protozoans or worms.

OR

Any plant or animal which causes disease e.g malaria germs in the blood. They have to depend on another organisms for their survival

Names of Pathogenic protozoa:

- 1) Thread worm
- 2) Flat worm
- 3) Round worm

Some common diseases caused by pathogenic worms are:

(1) Thread worm

Thread worm infection (Enterobiasis) is caused by thread worms which are whitish and develop in the intestine of the children.

Diseases:

- The patient suffering from this infection feels uneasy and restless due to inflammation and irritation in perianal region.
- Children carrying thread worms can not sleep comfortably at night.
- The infection is carried to other individuals through dirty lesions and contamination of food and air.



Ascaris (Round Worm)



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(2) Flat worm (Liver fluke)

It is a parasite in their liver and bile duct of sheep, goats and cattle.

Diseases:

- (Liver fluke) causes the disease known as the liver rot.
- It is also found in the human liver.
- Liver fluke seriously affects the liver of sheep and its function are upset.
- The animal becomes weak and young sheeps die in large numbers.



(3) Round worm

They have cylindrical bodies with glistening smooth surfaces. Ascaris (commonly known as round worms) is a cosmopolitan parasite in the small intestine of man, lying freely in the lumen.

Diseases:

- They may cause abdominal discomfort and colic pain.
- In children, where infection is more common, they dull the mental capacity and stunt the growth.
- Their juveniles cause haemorrhage in the lungs which results in pneumonia.

Question: 5

How do pathogens enter a human body? Suggest the measures to be taken to avoid the infections.

Answer:

Pathogens

Any plant or animal which causes disease e.g malaria germs in the blood. They have to depend on another organisms for their survival

OR

Pathogens are disease causing organism, they may be viruses, bacteria, fungi, protozoans or worms.

Precautionary Measures

The precautionary measures to be taken to avoid an infection are:-

- 1) Personal hygiene should be maintained.
- 2) Body should be kept clean so the chances of entry of germ inside the body be minimized.
- 3) Dogs and cats with disease called rabies should be destroyed at once.
- 4) Pet animals, another cause of some diseases, should be vaccinated and treated.

- 5) We must avoid throwing waste into the streets.
- 6) People suffering from contagious diseases be isolated and properly treated.
- 7) Good sanitary conditions in local place should be done.
- 8) Milk should be boiled before use.
- 9) Food must be kept in a clean place.
- 10) Boil water must be used.
- 11) Killing of vectors can eliminate the disease.
- 12) Keep your house and surroundings clean.

Question: 6

What is smoking? What are smoking impacts on the health of smoker in particular and on society in general?

Answer:

Smoking

Smoking is inhaling the fumes of tobacco by lighting cigarettes, cigars, huqqa etc.

Impacts on the Health of Smoker and on Society

Smoking is injurious to health. It causes many direct or indirect diseases to smokers and the people around them.

- A large number of people die of these diseases every year.
- Tobacco smoke contains about 1000 chemicals which are harmful. When people smoke cigarettes these chemicals transmitted into their bodies.
- The nicotine is a colourless drug and people get addicted to it, though it is a poison.
- The main effect of nicotine is on arteries. Arteries become narrow by nicotine so heart has to work harder to keep the blood supply normal. This makes a smoker more susceptible to heart attacks.
- Carbon mono-oxide present in smoke of cigarettes reduces the potential of oxygen absorption of blood.
- Tar is a brown substance which accumulates in smoker lungs and contains many cancer inducing chemicals.
- Smokers smell caused by tar, ammonia and other chemicals is really unpleasant.
- Cigarette smoking should be avoided because it has been established that there is close relationship between smoking and cancer.
- Inhalation of smoke given off by smoker has also been shown to be dangerous.

Question: 7

What are drugs? What is meant by drug abuse? Mention the common narcotics and their effects on the health of the addict.

Answer:

Drug

These substances which have medicinal values but affect our nervous system are known as drugs.

Drug abuse

People who abuse drugs for long time may become dependent on it. This is called drug addiction or drug abuse. Drugs are cure but their abuse is always injurious. It makes you a drug addict.

The common narcotics and their effects are:-

Type of drug	General effects	Example
Stimulant	Excitement, anxiety and sleeplessness	
Hallucinogen	Loss of coordination, hallucination, abnormal behaviour and depression	
Depressant	Drowsiness, loss of co-ordination, slow reflexes and depression	Heroin, cocaine, morphine and barbiturates.

Question: 8

What is a nervous break-down? Mention its types and their causes.

Answer:

Nervous Break-down:

It is a non-technical term applied to a wide range of mental disorders, usually marked by sharply decreased ability of the body to function properly and normally. These mental illnesses are of many types though two are common.

1) Neurosis

2) Psychosis

Neurosis:

It is an illness resulting from some sort of psychological conflicts. It involves stimulation of the autonomous system and affects a portion of mental functioning.

Causes:

Due to hysteria, anxiety, phobia or simply by depressions of any kind.

Psychosis:

It is a major mental disorder in which a person's ability to think and respond emotionally is so seriously impaired that he is unable to meet the ordinary demands of life.

Causes:

These mental disorders may appear due to aging, metabolic and nutritional disorders of infections or fear etc.

* * *

Question: 9

Describe three bacterial diseases.

Answer:

Tuberculosis:

It is bacterial disease. It is a disease of the lungs. TB bacteria which make small swelling in the lungs.

Symptoms:

Coughing, constant slight fever, chest pains, fatigue and loss of weight are the main symptoms of this disease.

Source of infection:

- i) Sometimes the germs of this disease are found in the milk of cows and whenever the milk is used by human beings they suffer from this disease.
- ii) Human sputum is also the main source of TB infection.
- iii) The germs of disease spread from diseased person to healthy person in different ways.
 - a) Through the air in droplets resulting from coughing or sneezing.
 - b) Through the foods handled by persons suffering from TB.

Control (Preventive Measures):

- i) Living condition of the people should be changed.
- ii) Use of antibiotics.
- iii) B.C.G Vaccine should be immunized to an infants.
- iv) Rest, fresh air and balance diet should be taken.
- v) Isolation of T.B patients in hospitals.
- vi) Patient utensils should be kept separately.

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(2) Typhoid

It is an acute infectious disease and it is caused by a bacterium *Salmonella Typhosa*.

Symptoms:

Patients suffer from continued high fever, headache and inflammation the intestine.

Source of infection:

- i) Poor Sanitary conditions.
- ii) Contaminated water and food.
- iii) Contaminated water and food.

Control (Preventive Measures):

- i) Typhoid vaccine should also be used for producing immunity in the individuals.
- ii) Food must be kept in a clean place.
- iii) Boil water must be used.
- iv) Milk should be boiled before use.

(3) Cholera

It is very serious infectious disease of the digestive tract and it is caused by a bacterium *Vibrio Comma*. These bacteria are passed out of the body of an infected persons in their faeces. Cholera generally erupts in epidemic form during rainy seasons or after the floods as the water and other food stuffs become contaminated severe diarrhoea is caused which may lead to death.

Source of infection:

- i) Faeces of an infected person.
- ii) Flies contaminate the food with cholera germs.

Control (Preventive Measures):

- i) Cholera vaccine should be immunized.
- ii) Water and food stuff consumed should be clean and hygienic.
- iii) Faeces of the patients should be properly disposed off to prevent spread of the diseases by flies.
- iv) In severe diarrhoea condition, intake of water with glucose and salts prevent further loss of water from body.

Question: 10

Name the different kinds of bacteria and write their useful and harmful effects in real life.

Answer:

Following are the different kinds of Bacteria:-

- | | |
|----------------------------|--------------------------|
| 1. Heterotrophic Bacteria. | 2. Saprophytic Bacteria. |
| 3. Symbiotic Bacteria | 4. Parasitic Bacteria |
| 5. Autotrophic Bacteria. | |

1) Useful Effects:

- Bacteria decompose dead plants and animals bodies and convert various organic compounds into simple forms such as nitrates, sulphates, phosphates etc for utilization by green plants again.
- Valuable antibiotics drugs have been obtained from bacteria e.g. Thyrothycin, Subitin, Riboflavin.

2) Harmful Effects:

- Some of the disease found in man due to bacteria are typhoid, tetanus, cholera tuberculosis.
- Bacteria spoils food by Fermentation and decomposition.

Question: 11

Name and explain two fungal diseases.

Answer:

Name of fungal diseases are:

- | | |
|------------------|--------------|
| 1) Athletes foot | 2) Ring worm |
|------------------|--------------|

1) Athletes Foot

It is a skin Infection caused by a fungus called Tinea.

Symptoms

- It is an example for the infection of skin and nails. This disease is very common in athletes who put on sweaty shoes for a long time.
- There is itching between the toes due to infection. The skin starts peeling and cracking.
- The nails get infected and become yellow, thick and brittle.

Sources of Infection

- The disease spreads directly from person to person by infected objects e.g towels.

Control

- a) One must sprinkle powder in shoes and then wash the foot and pat dry with towel before wearing it.
- b) A person should wear flexy and comfortable shoes.
- c) Pedicure is also good and hygiene.
- d) Apply antifungal ointments.

(2) Ring Worms

It is an infection of skin caused by a group of fungi. The fungi causing the disease are collectively known as Dermatophytes.

Symptoms:

The fungi, on attacking the skin cause localised lesions in the skin. Lesions assume circular form as growth of the fungus in the skin is more or less equal in all directions.

Control:

- a) Take bath regularly.
- b) Good sanitary conditions in local place.
- c) Can be caused by the external application of fungicide ointments.

Question: 12

Describe briefly about Malaria.

Answer:

Malaria:

Malaria is caused by protozoan known as Plasmodium injected in the blood of humans by mosquitoes.

Symptoms:

- a) Victims feel very cold.
- b) Attack is accompanied by nausea and headache.
- c) A few hour later the patient feels much better though weak and tired.

Control:

- a) The disease can be controlled by draining puddles, marshes and water pools where mosquitoes lay eggs.
- b) Kerosene oil and other oils should be sprayed on the top of the water.
- c) Door and windows of the houses should be covered with screen.
- d) Insect sprays should be used for killing the mosquitoes.

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Question: 13

Write down six different ways of the spreading of germs and explain any two of them.

Answer:

Ways to spread germs:

1. By food.
2. By water
3. By contact
4. Through faeces.
5. By animals.
6. By blood transfusion.

1. By Contact: Some diseases like ring worms are transmitted by physical contact with an infected person or his contaminated article some type of germs like that of tetanus can enter the body from cuts and scratches of the skin.

2. By Animals: Many insects like mosquitoes, flies, fleas and ticks are the most common animals responsible for transmission of disease causing germs from one person to another such animals are called vectors.

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Chapter - 6

Environment and Natural Resources

Section-I : Multiple Choice Questions (MCQ's)

1. Atmosphere extends above the earth upto, a distance of:
- a) 65 Km
 - b) 650 Km ✓
 - c) 6500 Km
 - d) 605 Km
2. The layer of atmosphere most helpful in communications is:
- a) Ionosphere ✓
 - b) Thermosphere
 - c) Troposphere
 - d) Mesosphere
3. Wind current blowing around the earth get deflected towards right in the northern hemisphere by:
- a) High temperature
 - b) Low temperature
 - c) Gravitational pull
 - d) Rotation of earth ✓
4. Green house effect keeps the earth's atmosphere:
- a) Warm ✓
 - b) Gold
 - c) Green
 - d) Fertile
5. Which one is the green house gas:
- a) Oxygen
 - b) CO₂
 - c) Nitrogen
 - d) Ozone ✓
6. Ozone layer is thinning by the discharge in the atmosphere of:
- a) CO₂
 - b) SO₂
 - c) NI I₃
 - d) Chlorofluoro carbon gases ✓
7. Which one is not a fossil fuel?:
- a) Wood ✓
 - b) Coal
 - c) Oil
 - d) Natural fuel gas

8. Most exported product of Pakistan:

- a) Cotton
- b) Wheat ✓
- c) Rice
- d) Maize

9. The percentage of N_2 in air is:

- a) 21%
- b) 50%
- c) 78% ✓
- d) 30%

10. The layer of environment closest to earth is called:

- a) Stratosphere
- b) Troposphere ✓
- c) Thermosphere
- d) Mesosphere

11. Ozone is present in:

- a) Stratosphere ✓
- b) Troposphere
- c) Thermosphere
- d) Mesosphere

12. Which of the following hold more moisture?

- a) Hot air ✓
- b) Cold air
- c) Both a & b
- d) None of the above

13. What % of the earth's land are covered over by forests?

- a) 30% ✓
- b) 40%
- c) 50%
- d) 60%

14. Which type of pollution is acid rain and Ozone layer depletion?

- a) Thermal pollution
- b) Air pollution ✓
- c) Noise pollution
- d) Water pollution

15. The alloy Nichrome, composed of:

- a) Nitrogen & Chromium
- b) Nitrogen & Carbon
- c) Nickel and Carbon
- d) Nickel & Chromium ✓

16. Which of the following is not a fossile fuel :

- a) Coal
- b) Wood ✓
- c) Natural gas
- d) Oil

17. Which of the following gas is responsible for depletion of Ozone layer:

- a) CO_2
- b) SO_2
- c) Chloroflouro carbons ✓
- d) N_2

18. Discharge of _____ in atmosphere is responsible for acid rain.

- a) SO_2
- b) CO_2
- c) Both a & b ✓
- d) Chloroflouro carbons

19. Atmosphere extends upto _____ km above the earth :

- a) 650 km ✓
- b) 100 km
- c) 1000 km
- d) 6500 km

20. Ozone layer protect us from :

- a) Infrared rays
- b) Ultra Violet rays ✓
- c) Both a & b
- d) None of these

Section-II : Short Answer Questions

Question: 1

Give the percentage of various gases air is composed of.

Answer:

Air is a mixture of gases consisting mainly of:

Gases	Percentage
Nitrogen	78%
Oxygen	21%
Carbondioxide	0.03%
Argon and few other gases	1%

Question: 2

What does ozone layer of atmosphere do?

Answer:

It protects the Earth from the harmful rays of the sun.

High up around the earth in its atmosphere. In between 12 and 50 km above the ground, is a layer of the ozone gas. The ozone protects the earth and its organisms from harmful effects of ultra violet rays of the sun.

Question: 3

Why is snow present usually on the top of mountain and absent at their bottom?

Answer:

Sunlight from the sun does not heat it much. These are the infra-red rays radiating back, which warm the atmosphere more. Hence the temperature of troposphere is high near the earth's surface and it decreases as you go up. It is therefore, it is hot and snow absent at their bottom of a mountain and it is always cold at its top. Therefore, snow present usually on the top on mountain.

Question: 4

What are minerals? Name of few precious minerals found in Pakistan?

Answer:

Minerals

Minerals are those substances which are found in the earth's crust and are known as inorganic substances.

Names of minerals found in Pakistan:

Some of the important minerals found in Pakistan are mentioned below:-

- | | | | |
|----------------|--------------|---------------|------------|
| (1) Gem Stones | (2) Coal | (3) Gas | (4) Gypsum |
| (5) Mica | (6) Chromite | (7) Petroleum | (8) Cement |

Question: 5

Name some sources of energy not using fossil fuels.

Answer:

Some sources of energy not using fossil fuels are:

- | | | |
|---------------------|-----------------------|---------------------------|
| (1) Solar energy | (2) Wind energy | (3) Hydro-electric energy |
| (4) Biogas | (5) Geothermal energy | |
| (6) Magnetic energy | (7) Nuclear energy | |

Question: 6

What is an endangered organism?

Answer:

Endangered Organism:

An organism whose population has reduced in such a small number that its very existence is in danger, is called an endangered organism.

Snow leopard, crocodile, bear, many snakes and many fishes including the famous pallah have become endangered in Pakistan.

Question: 7

What is meant by human population explosion?

Answer:

Human Population Explosion:

When the rate of growth of a country increase and the country does not met the requirement to fulfill the needs of the society is set to be human population explosion.

Question: 8

What are the remedies for controlling the problem due to increase in population?

Answer:

Remedies for controlling the problems due to increase in population:

- 1) Number of animals should be increased by breeding new types of animals.
- 2) Quality of crops, vegetables and fruits should be improved by using high quality fertilizers.
- 3) Now types of fruits, vegetables and crops should be grown for controlling the shortage of food.

Question: 9

What do you mean by material pollution and non material pollution?

Answer:

Material Pollution:

Pollution of air, water and land is called material pollution.

Non Material Pollution:

Noise, rise in temperature and excessive exposure to radiation are called non-material pollution.

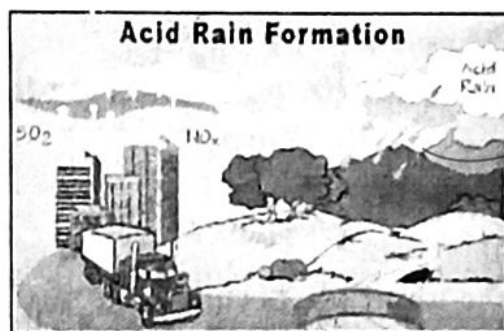
Question: 10

Define Acid rain.

Answer:

Acid rain:

Sulphur dioxide and oxides of nitrogen are the product of coal, oil and natural gas burning. They react readily with oxygen and rain water to form dilute sulphuric acid and nitric acid respectively. Rain containing these acids is known as acid rain.



Question: 18

Name six main products of dairy farming. Describe briefly any two of them.

Answer:

Main Products:

- | | | |
|-----------|-----------|---------------|
| 1. Milk | 2. Cream | 3. Ghee |
| 4. Yogurt | 5. Cheese | 6. Ice-Cream. |

1) Cream:- The cream content of milk is separated by centrifuging it. Cream contains 30 to 40% of butter which is removed and sold as such. Some of the butter is melted to make purified butter oil ghee. It can be stored for a longer period even without refrigeration.

2) Yogurt:- Yogurt is made by fermenting milk with the help of useful bacteria. The resulting curd is in the form of lumps which are changed into yogurt. Yogurt is often garnished by adding sliced fruits and flavours.

Question: 19

Name the main crops which are cultivated in Pakistan.

Answer:

Names of the main crops:

The main crops cultivated in Pakistan are:-

- | | | |
|-------------|------------|---------------|
| (1) Wheat | (2) Rice | (3) Maize |
| (4) Pulses | (5) Cotton | (6) Sugarcane |
| (7) Tobacco | (8) Fruits | |

Question: 20

Define renewable and non-renewable resources.

Answer:

Renewable resources:

Renewable resources add up every season and are replenished and are available again and again.

Example: wood, wool, food etc.

Non-renewable Resources:

Non renewable resources once they are used up are not available again.

Example: minerals and fossil fuels.

Section-III : Detailed Answer Questions

Question: 1

Define atmosphere. Describe the different layers of atmosphere.

Answer:

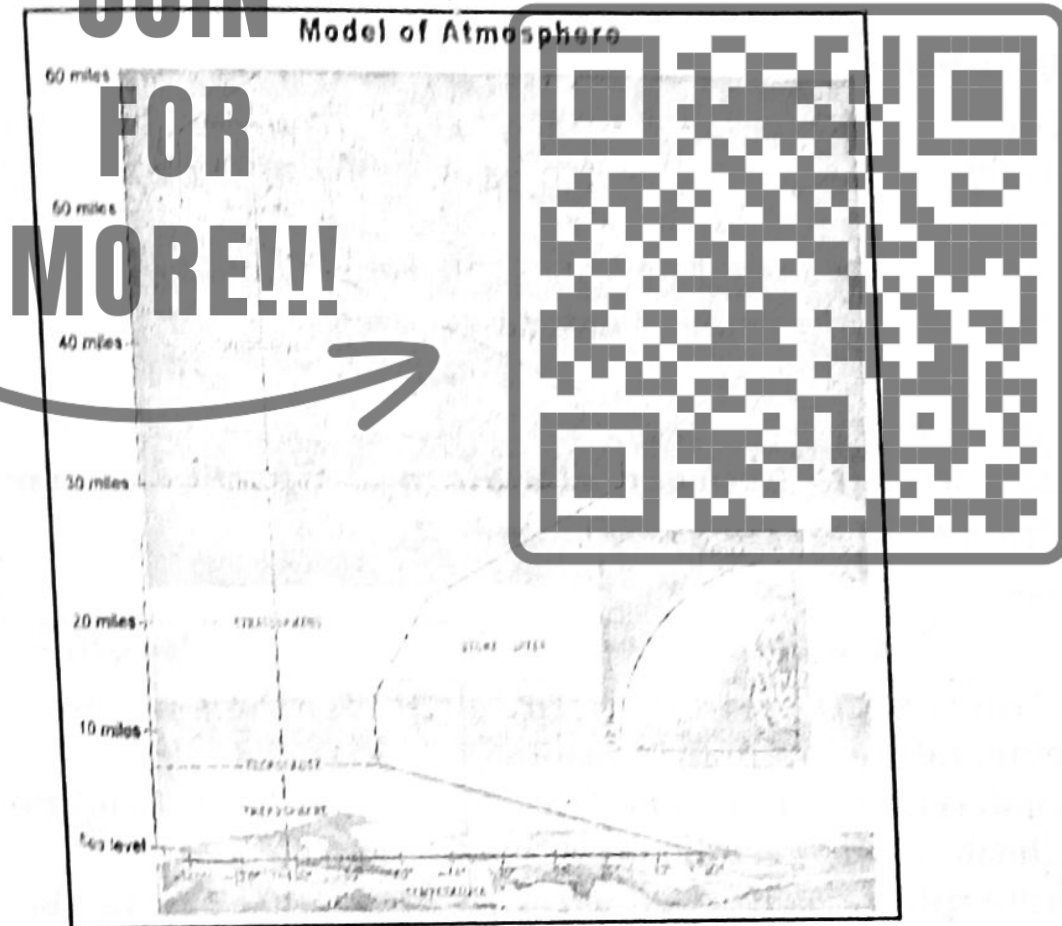
Atmosphere:

The air which surrounds the earth, like an envelope, upto a height of about 650 km is called its atmosphere.

Different layers of atmosphere:

The different layers of atmosphere are:

- | | | |
|-----------------|-----------------|---------------|
| 1) Troposphere | 2) Stratosphere | 3) Mesosphere |
| 4) Thermosphere | 5) Ionosphere | |



(1) Troposphere:

Atmosphere can be differentiated into many spherical layers. The spherical layer closest to the earth is called troposphere. This is the layer in which we live. It is the troposphere where most of the changes for example weather changes take place.

(2) **Stratosphere:**

At the height of 11 km the temperature starts rising. This marks the beginning of second layer called stratosphere. Between 45 - 60 km above the earth surface the stratosphere contains a high percentage of a gas called ozone. It is an allotropic form of oxygen that acts as an umbrella to absorb most of the harmful ultra-violet rays of the sun.

(3) **Mesosphere:**

Above the ozone layer, the temperature begins to drop once more. This is the beginning of mesosphere.

(4) **Thermosphere:**

There is no exact end of thermosphere. The gases just continue to spread out. Until you are in space. This is thought to occur somewhere around 650 km high.

(5) **Ionosphere:**

Due to the excessive solar energy absorbed by air molecules the atmosphere again or lose electrons so many of the gas molecules, become electrically charged particles are called ions. This part of mesosphere and thermosphere is called ionosphere. It reflects many type of radio-waves allowing them to be bounced around the world.

Question: 2

Differentiate between climate and weather. Name the factors responsible for climate change?

Answer:

Climate	Weather
(1) Climate elements include temperature, rainfall, sunshine, wind, velocity, precipitation etc.	(1) Weather elements includes humidity, temperature, cloudiness, brightness, visibility etc.
(2) Climate is what conditions of the atmosphere are over a long periods of time.	(2) Weather is how the temperature behaves over the short period of time.

Name of Climatic Factors:

- | | |
|------------------|-----------------|
| (1) Air pressure | (2) Temperature |
| (3) Wind | (4) Humidity |

Question: 3

How do temperature, pressure wind, and humidity affect the climate of a region?

Answer:

Climate of a region depends on the interaction of many factors are following:

(1) Air pressure

Air is made up of tiny molecules. Pressure is a force exerted on a surface area, created by the weight of air above it. Due to their movement they spread outward and upward, hence the air pressure is higher near the earth's surface. It gradually decreases as we go away from earth, until it disappears in the emptiness of the space.

(2) Temperature

Temperature is another factor which affects the atmosphere and climate. Temperature changes day and night and also varies from season to season.

At the regions of higher temperature the air expands and the atmospheric pressure becomes low whereas in the regions of low temperature atmospheric pressure remain high.

Thus several belts of low and high temperature and pressure develop around the earth. This difference in pressure causes these air belts to rotate in set directions and thus affect the climate.

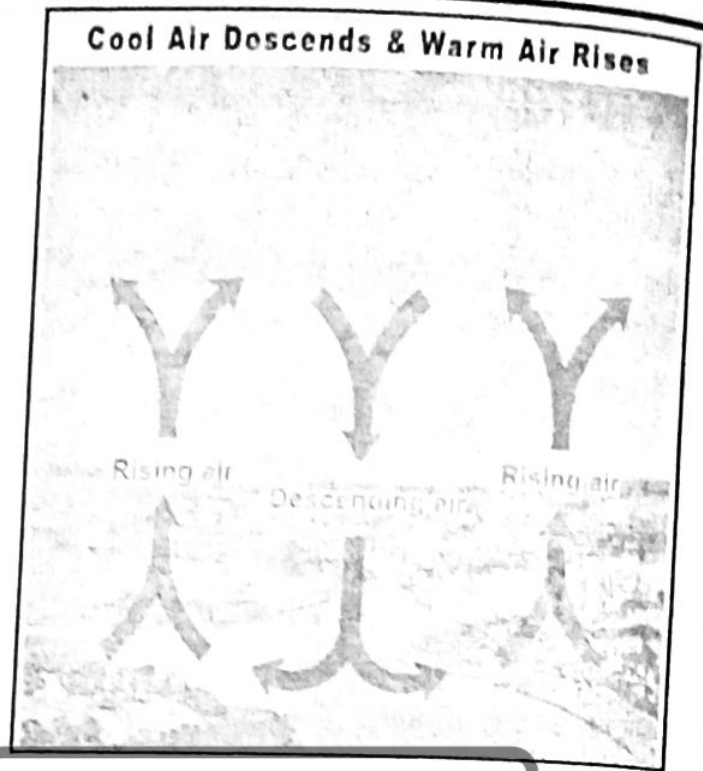
(3) Wind

Wind is the movement of atmospheric air on a planet. It is caused by the different temperatures around the planet. Wind blows from equator to the poles and from the poles to the equator. These winds are however deflected to the right in northern hemisphere and to the left in southern hemisphere due to the rotation of earth on its axis. These huge wind belts blowing across the earth alter the temperature, cause the rainfall and hence play an important role in determining the climate of an area.



(4) Humidity

Another important factor of atmosphere is humidity. Humidity is the concentration of water vapours in the air. It comes from evaporation of water from lakes, rivers, streams and plants but mostly from the oceans. Humidity can make the temperature of the surrounding air feel like it is warmer than the actual temperature.



Question: 4

Discuss green house effect and its importance.

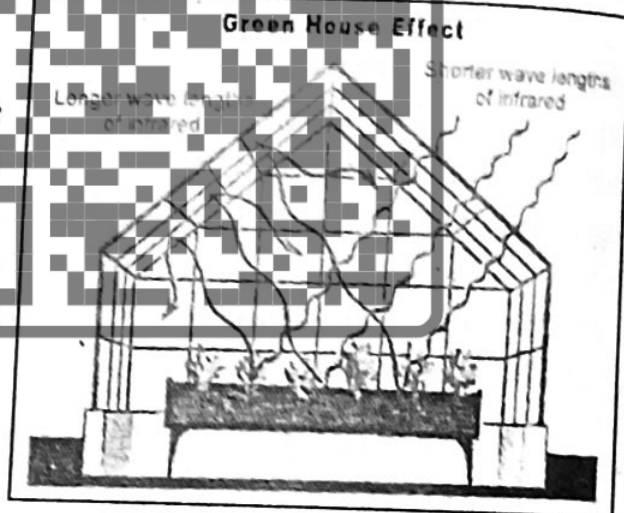
Answer:

Green House:

Plants grown in warm areas can be grown in a cold climate in special houses made of glass or transparent plastic tents. These glass houses or plastic tents in which plants are grown are called green houses.

Effect & Importance of Green House:

- 1) When the amount of carbondioxide is increases in the atmosphere, less energy will be lost from the surface of the earth. Therefore the average temperature of the earth will rise gradually. This gradual rise in the temperature of the earth due to the increasing amount of carbon dioxide in nature is called the Green house effect.
- 2) The green house effect thus keeps the temperature of atmosphere friendly for every sort of life to flourish.
- 3) Green house may have many effects e.g polar ice caps might melt which may cause rise in sea level and flooding of coastal areas.



- 4) Other gases which contribute to the green house effect are also being released in the atmosphere by human activities. These includes methane, nitrous oxide and CFCs (Chloro fluoro-carbons)
- 5) Other gases which contribute to the green house effect are also being released in the atmosphere by human activities. These includes methane, nitrous oxide and CFCs (Chloro fluoro-carbons)
- * * *

Question: 5

Describe various climatic regions?

Answer:

Name of climatic Regions:

Name of the climatic regions are:

- (1) Forest (2) Tundra (3) Grass lands (4) Deserts

(1) Forest:

- (a) The forests are one of the important resources for the country and meet a number of requirements like wood, herbs etc.
- (b) The forest are the main source of fire wood.
- (c) The forest add to the beauty of landscape.
- (d) The forests provide herbs which are used in the preparation of medicines.
- (e) The forests help in reducing water logging and salinity in the soil.

(2) Tundra

- (a) Treeless marshy area is called tundra.
- (b) Tall plants grow during a short mild summer.
- (c) Rest of the year the soil top remain frozen and covered with ice.
- (d) They are present around north pole and on high mountain tops.

(3) Grass lands

- (a) Grass lands are the most fertile regions which are densely packed with tall grasses.
- (b) They are called the bread baskets of the world.
- (c) They naturally develop in regions with cold winter, hot summers and seasonal rainfall.
- (d) Grass lands are now mostly acquired by man for the following purposes are:

- For cultivation of crops
- For grazing the live stock.
- For human settlements.

(4) Deserts

- (a) Deserts have the most dry and harsh environment on the earth.
- (b) Deserts cover about 30% of the earth's land.
- (c) Intense solar radiation, lashing winds and little rainfall create this harshest climatic region called the desert.
- (d) The rainfall here is more than a few centimeters per year.

* * *

Question: 6**What is pollution? Name various types of air pollution.****Answer:****Pollution:**

Pollution is defined as the undesirable changes in the physical, chemical or biological characteristics of air, land and water that will harmfully affect human life and other organisms.

Types of Air pollution:

The various types of air pollution are:

- 1) Global warming
- 2) Acid rain
- 3) Depletion of ozone layer
- 4) Smog
- 5) Soil erosion

* * *

Question: 7**Differentiate between renewable and non-renewable resources in nature. What are fossil fuels? Discuss their importance.****Answer:**

Renewable Resources	Non-renewable Resources
Renewable resources add up every season and are replenished and are available again and again. Example: wood, wool, food etc.	Non renewable resources once they are used up are not available again. Example: minerals and fossil fuels.

Conservation of non-renewable resources

- (1) Due to high rate of population growth, the mineral resources are put to maximum use with the result that these resources are quickly exhausted.
- (2) The planning or utilization of our mineral resources demands that they should adequately meet our requirements and also remain available for the coming generation.

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- (3) Their depletion through reckless use and wastage can deprive us of this rare wealth of nature accumulated over the ages. For instance as mentioned earlier the formation of coal, petroleum and natural gas under the earth began over million years earlier.
- (4) Human activity would take less than a century to drain out natural treasures gathered over millions of years e.g natural gas, petroleum.

Fossil fuels:

Fossil are the remains of ancient animals and plants who died and were buried in the soil millions of years ago. Since petroleum, natural gas and coal are formed from these fossils are called fossil fuels.

Importance of Fossil Fuels:

- 1) Natural gas, petroleum and coal are running today our industrial and power plants.
- 2) More than 3000 chemicals can be made from by products obtained from fossil fuels.
- 3) Wood has been the sole source of energy has been burnt to provide heat and to cook food.
- 4) Natural gas is widely used in Pakistan for heating and cooking purposes.
- 5) Petroleum and gas used in automobiles.
- 6) Natural gas is also used in fertilizer production.
- 7) Coal is used in power plants to generate electricity.
- 8) Petroleum and gas produce many other important chemicals needed for our daily life activities which include nylon, polyesters, foam and aspirin.

Question: 8

What do you mean by wild life? Describe Fauna of Pakistan.

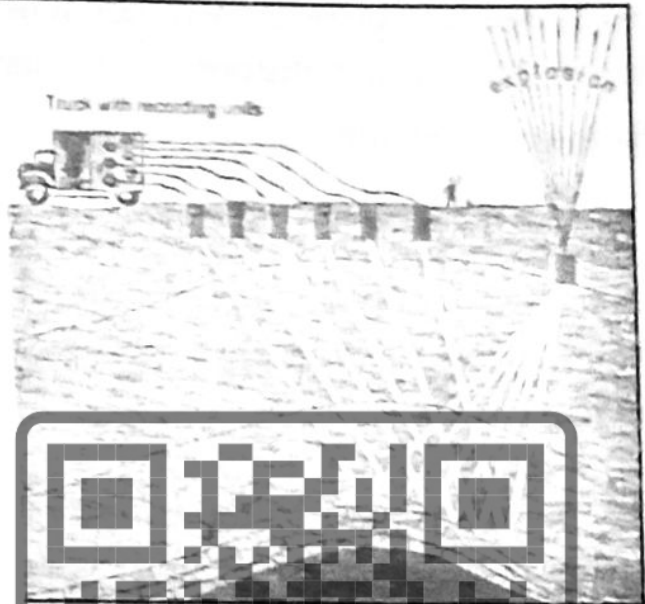
Answer:

Wild life:

In broad sense the term wild life means all non-cultivated plants and non-cultivated plants and non-domesticated animals life.

OR

The term wild life means all the native plants and animals of a region.

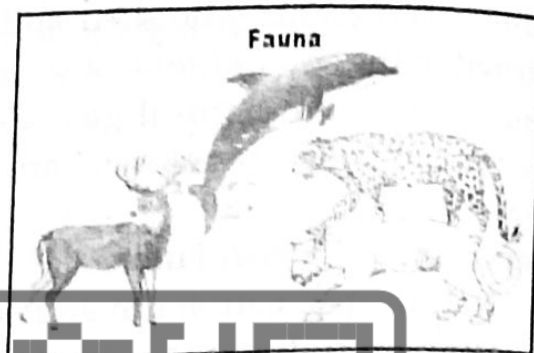


Importance of Wild Life:

- 1) Wild life is considered important because it provides help in controlling soil erosion.
- 2) Conservation of wild plants is most essential because they can provide us food as well as medicines.
- 3) If trees are present then they will resist the storm, wind and rain.
- 4) Atmospheric pollution can be decreased by the forests.

Fauna of Pakistan:

We all know that our country is fully of variety of animal groups. Each one of these groups hold an important position in its biological relationship with plants and human beings.



(1) Fauna of Water:

The shores and offshore waters of Karachi are rich in sea food. Many fresh water fishes can be found in our rivers and lakes.

Examples:

- | | | |
|------------|---------------|---------------|
| (1) Trouts | (2) Flat Fish | (3) Sea Horse |
| (4) Skates | (5) Males | |

(2) Amphibian and Reptiles:

Pakistan is also rich in Amphibian i.e Frogs and Toads.

Different types of Reptiles are also found in our country:-

Example:

- | | | |
|---------------|-------------|-------------|
| (1) Crocodile | (2) Lizards | (3) Turtles |
| (4) Gavial | (5) Snakes | |

Like Cobra, Krait and Phythons.

(3) Flying Birds:

Our country is rich in many types of flying birds. The names of the birds which are available in our country are given below:

- | | | | |
|----------------|----------------|---------------------------------|-------------------------------|
| (a) (1) Quails | (2) Partridges | (3) Pheasants | are considered as game birds. |
| (b) (1) Crane | (2) Water fowl | (3) Shaheen | |
| (4) Falcon | (5) Snow cock | are considered as common birds. | |

(4) Mammals

Mammals are considered as major part of wild life and domesticated Fauna.

Chapter -6 : Environment and Natural Resources

Examples of common mammals:

- | | | |
|-------------------|-----------------|-------------------|
| (1) Wolf | (2) Grey Langur | (3) Rhesas Monkey |
| (4) Snow Leopared | (5) Markhor. | |

Question: 9

What is conservation? Why the conservation of natural resources necessary? Suggest the measures to conserve the fossil fuels.

Answer:

Conservation:

Conservation is the wise use of natural resources (nutrients, minerals, water, plants, animals etc). Preserving and renewing natural resources to assure their highest economic or social benefit specially, bird, fish etc.

Conservation of natural resources

The conservation of natural resources is necessary because it is the wise and planned use of resources. Much of the energy we use could be saved by conservation practices and improved efficiency of all fuel using machines.

Measures to conserve the fossil fuels

Some methods by which we can conserve energy are:

- 1) We must use energy wisely and economically without unnecessary wastage, because our conventional sources of energy are quite limited.
- 2) The fluorescent lamp uses less current to give the same amount of light that ordinary bulbs do. It is advisable to use fluorescent lamps instead of an incandescent bulbs.
- 3) Old vehicles and transportation trucks may not be allowed to be used any further because these vehicles not only consume more energy but also cause great amount of air pollution.
- 4) We should also use the natural gas very wisely. It should not be left burning in stoves and other appliances like gas heater, and gas lamps unnecessarily.

Question: 10

What is meant by human population explosion? What are its adverse effect?

Answer:

Human Population Explosion:

When the rate of growth of a country increase and the country does not met the requirement to fulfill the needs of the society is set to be human population explosion.

OR

Pakistan is a densely populated country. Its total resources are not increasing at a rate commensurate with the rate of growth of population. This has resulted in an undue pressure on the existing resources and the country is experiencing a population explosion.

Adverse effects of increase in population:

- 1) The life standard is lowered.
- 2) The cases of famine will highly increased.
- 3) There will be problem of space and housing.
- 4) Rise in unemployment.
- 5) Rising incidence of diseases.
- 6) There will be increase in the amount of waste products which will further pollute the environment.
- 7) Infections diseases are highly increased.
- 8) Reduction in per capita facilities of sanitation.
- 9) Rising high birth and death.
- 10) It suffer health and education.

• • •

Question: 11

What is pollution? Write four harmful effects of Pollution.

Answer:

Any substance which makes food, water or surroundings unhealthy for any living thing.

OR

Pollution is defined as the undesirable changes in the physical, chemical or biological characteristics of air, land and water that will harmfully affect human life and other organisms.

Chapter - 6 : Environment and Natural Resources

Various effects of air pollution are given below:

1. Change in temperature of earth:

It causes serious droughts, heavy rains and floods etc.

2. Acidic rain:

Acid rains cause damage to our health, our metallic things, crops and animals.

3. Tobacco smoke:

The tobacco smoke may cause cancer and other diseases.

4. Effects of asbestos:

The asbestos particles present in air may cause lung cancer and other diseases of respiratory organs.

Question: 12

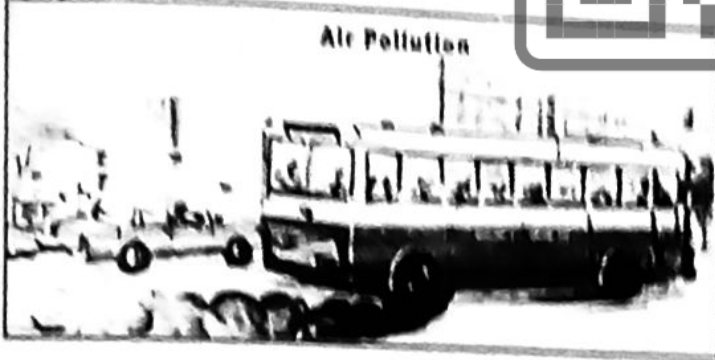
What are the ways by which air and water pollutions can be reduced?

Answer:

Control and Preventive Measures to reduce Pollution

The following are some ways by which air and water pollutions can be reduced.

1. Use of catalytic converters in cars.
2. More and more trees should be planted to maintain temperature in nature.
3. Less used fertilizers and pesticides.
4. Protect the rivers and streams from industrial dump.



5. Sewage should be treated properly.
6. Use of ozone friendly products to prevent ozone depletion.
7. Use of non fossil fuels in factories.
8. Use filters or scrubbers on industrial chimneys to remove sulphur dioxide.
9. Establishing mass transit system or having car pools.
10. To regulate the industrial wastes discharged in atmosphere.
11. Cans, bottles, polythene bag should be disposed properly.
12. CNG should be used instead of fuel in vehicles.

Question: 13

What is Air Pollution? Write down three ill effect of air pollution and three ways of controlling it.

Answer:

Air Pollution:

When the composition of air is changed by the addition of substances that are harmful to living things, the air is said to be polluted and the phenomena is called Air pollution.

Harmful Effects of Air Pollution:

1. Air pollution by smoke and other suspended particles often cause such a reduction in visibility that near by objects cannot be seen. This causes serious traffic accidents on heavily travelled highways.
2. It has been found from studies that a dense layer of smoke and smog over a city may absorb as much as 90% of sun lught in that area. Even when a small part of total sunlight is absorbed by pollution a complete loss ultra voilet radiation may occur. This may often affect the health of the community.
3. Another serious pollution disaster ever recorded occured in Great Britain in the year 1952. Smoke and other pollutant being discharge from thousands of chimneys gathered under a blanket of dense fog and a temperature inversion, that covered the almost entire country. The smog that was formed, caused thousands of people to die and thousands of others to become ill.

Ways to Control Air Pollution:

1. A device is called 'After burner' consist of a spark plug and an air supply device which are placed in the exhaust system. A spark from the spark plug helps to destroy unburned feul particles and other pollutants.
2. Water Sprays are also used to assit the removal of fine dust particles.
3. Another effective way for the collection and removal of aerosol particles is the use of electrostatic precipitator. This device causes the aerosol particles to become electrically charged. The charged particles are then attracted towards mettalic tubes that have an opposite charge. The particles collect on the outside of tube periodically the collected material is removed from the tube.

Question: 14

Explain Depletion of Ozone Layer.

Answer:

Depletion of Ozone Layer:

High up around the earth in its atmosphere. In between 12 and 50 km above the ground, is a layer of the ozone gas. The ozone protects the earth and its organisms from harmful effects of ultra violet rays of the sun.

Ozone layer is being broken down continuously by the action of chlorine in chlorofluoro carbons (CFCs), discharged from foam industry, and from conditioners and refrigerators. Thinning of the ozone layer allows more ultra violet radiation which is causing skin cancers and eye cataract in human beings. It also damages crops and plants and trees thus destroying the food chain that supports the life on earth. We need to develop better alternative of CFCs to bring the ozone layer back to normal and to shield ourselves from the hazards of ultra violet rays.



Question: 15

Write the advantages of forests and the harmful effects of cutting the trees of forests indiscriminately.

Answer:

Advantages of Forest:

- i. Forest are considered to be the backbone of our economy.
- ii. The regulate the quality of water in the river by preventing the free flow of soil in water by holding it with their roots.
- iii. They prevent formation of deserts.
- iv. Control water logging.
- v. Maintain the amount of salt in the soil.
- vi. Regulate the temperature of atmosphere.



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vii. They not only provide oxygen but also provide food and shelter for the animals.

viii. They are an integral part of our ecosystem.

Harmful Effects of Cutting Trees of Forest:

- i. Due to cutting down of trees many animals are close to becoming extinct.
- ii. Human will lose the source of drugs.
- iii. They are losing the means of improving crops.
- iv. Cutting down of trees on a large scale increases the rate of pollution.

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Question: 16

Name six main agricultural crops of Pakistan and describe briefly any four of them.

Answer:

Agricultural Crops:

1. Wheat
4. Pulses

2. Rice
5. Cotton

3. Maize

6. Sugar cane

1. Wheat: The annual production of this crop in our country now exceeds 14 million tonnes. It is grown all over the country. Wheat is also used to produce several grade of granulated and fine flour. The fine flour is used to make bread, biscuits and several bakery items.

2. Rice: About 1/10 of the total area under cultivation is covered by rice. It comes next to wheat. Most of it happened to be the Basmati variety. It is celebrated for its taste and flavour.

3. Pulses: Pulses include several cereals like gram, lentils and several kinds of beans like maush, mong, arhar, lobia and raj maush. Seven percent of the total cultivated area is covered by pulses and about 80% of which is only for grams. Being richer in proteins pulses fill the proteins deficiency gap in our diet.

4. Sugar-Cane: The increased production of sugar cane has made the country almost self sufficient in sugar. It is grown in Mardan, Dera Ismail Khan, Nawabshah, Lahore, Faisalabad and Sargodha regions.

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