Important snaps by Team PIS Class- IX

SUBJECT : BIOLOGY

TEACHER : MS.MONIKA

Chapter 5 FUNDAMENTAL UNIT OF LIFE : CELL

- **Q1. How do substances like carbon dioxide and water move in and out of cell ?**
- **A.** Carbon dioxide moves into and out of cell though diffusion or passage from the area of its higher concentration to the area of its lower concentration across the cell membrane.

Water moves into and out of cell through osmosis or passage of water from the area of its higher concentration to the area of its lower concentration across the cell membrane which acts as a semipermeable membrane.

Q2. Which cell organelle is known as "suicide bags" of the cell ? Why ?

A. Lysosomes contain digestive enzymes against all types of organic materials. If their covering membrane breaks as it happens during injury to cell, the digestive enzymes will spill over the cell contents and digest the same. As lysosomes are organelles which on bursting can kill the cells possessing them, they are called suicide bags.

Q3. Why is the plasma membrane called a selectively permeable membrane ?

A. Cell membrane is semipermeable membrane for water. It permits the entry of gases through diffusion. Ions, sugar, amino acids, etc. pass through the plasma membrane by an active process. Plasma membrane is impermeable to certain other materials. Therefore, it is selectively permeable.

Chapter 5 FUNDAMENTAL UNIT OF LIFE : CELL

- **Q2.What is ER? Write its function?**
- **A.** The endoplasmic reticulum (ER) is a large network of membrane-bound tubes and sheets. It looks like long tubules or round or oblong bags (vesicles). The ER membrane is similar in structure to the plasma membrane. There are two types of ER– rough endoplasmic reticulum (RER) and smooth endoplasmic reticulum (SER). RER looks rough under a microscope because it has particles called ribosomes attached to its surface. The ribosomes, which are present in all active cells, are the sites of protein manufacture. The manufactured proteins are then sent to various places in the cell depending on need, using the ER.
- **Q2. How does amoeba obtain its food?**
- **A.** Amoeba obtains its food through endocytosis. It has finger-like projections that fuse with the food particle forming a food vacuole. The complex food particles are broken down into simpler ones inside the vacuole which are then diffused into the cytoplasm.

Chapter 6 TISSUES

- **Q1.Briefly describe striated and smooth muscles with their functions.**
- **A.** The striated muscle fibres are long or elongated, non-tapering, cylindrical and unbranched. These cells have a number of nuclei called sarcolemma.These muscle fibres shows alternate dark and light stripes or striations and so they are called as striated muscles. These muscles occur in muscles of limbs, body wall, face, neck, etc.

Functions of striated muscles:
a) Striated muscles are powerful and undergo rapid contraction and expansion.
b) Striated muscles provide the force for locomotion and all other voluntary movements of the body.

The smooth muscles are also known as unstriated or involuntary muscles. Smooth muscles occur as bundles or sheets of elongated fusiform or spindle-shaped cells or fibres. They are held together by loose connective tissue. These muscle fibres are uninucleate and do not bear any bands, stripes or striation across them.

These muscles are found in the walls of the alimentary canal and internal organs, ducts of glands and blood vessels. Smooth muscles are also found in the stomach, intestine, ureters, bronchi, iris of the eye, etc.

Functions of smooth muscles:
Smooth muscles help in the movement of food in the alimentary canal and the contraction and relaxation of blood vessels.

Chapter 6 TISSUES

- **Q1. List any four salient features of meristematic tissue.**
- **A.** The salient features of meristematic tissue are:

  a) This tissue consists of cells which continuously divide to produce new cells.

  b) The cells of this tissue lack vacuoles.

  c) The cells of this tissue have dense cytoplasm.

  d) The cells of this tissue have thin cellulosic cell walls and prominent nuclei.

- **Q2. Differentiate between tendon and ligament.**

  A. Ligament is a connective tissue which joins bone to bone and is elastic in nature.

  Tendons join bone to muscles and are less elastic as compared to the ligaments.

Chapter 7 DIVERSITY IN LIVING ORGANISMS

- **Q1. Define metameric segmentation.**
- **A.**Metameric segmentation is a type of segmentation where external divisions correspond to internal divisions.
- **Q2.** Describe the hierarchical system of classification currently followed.
- Hierarchy of classification categories was established and designed by Linnaeus. Hierarchy of classification is a system of arrangement of a framework in order of logical sequence. The currently followed hierarchical system for all organisms is

Kingdom

Phylum/Division

Class

Order

Family

Genus

Species

Chapter 7 DIVERSITY IN LIVING ORGANISMS

- **Q1. Why are bryophytes called the amphibians of the plant kingdom?**
- **A.**The plant bodies of bryophytes are devoid of vascular tissues and roots. So they live in moist habitats in order to obtain water directly or through rhizoids. Moreover, like the amphibians of animal kingdom, the sperms of bryophytes require an external water medium for reaching the eggs. Due to this reason, bryophytes are called the amphibians of the plant kingdom.
- **Q2. What are the main characteristics of chordates?**
- **A.** The main characteristics of chordates are given as under:

a) They possess a solid notochord.

b) The body has bilateral symmetry.

c) They have a true vertebral column.

d) They have a dorsal hollow nerve cord.

e) They are triploblastic.

f) The terrestrial forms respire through lungs and the aquatic forms through gills.

g) They are coelomate.

Chapter 13 WHY DO WE FALL ILL

- **Q1. What is an antibiotic ? Give two examples.**
- **A.** Antibiotic is a chemical substance that kills bacteria, secreted by microorganisms which can kill the pathogens. Examples, Penicillin and Streptomycin.
- **Q2. Which amongst the two diseases : acute or chronic has adverse effect on the health of a person? Explain giving a suitable example.**
- **A.**Chronic disease lasts for long time so it is more harmful than acute disease. For example, cough and cold, viral fever are acute diseases which do not affect our health badly and we become well within a week or so while tuberculosis (TB) which is a chronic disease affects health drastically and has a long time effect on our body.
- **Q3. Why are we normally advised, to take bland and nourishing food when we are sick ?**
- **A.** When a person is sick, then his normal body functions get disturbed. In such a situation, such food is required which is easy to digest and contains adequate nutrients for the speedy recovery. Thus, bland and nourishing food is required during sickness.

Chapter 13 WHY DO WE FALL ILL

- **Q1. What are the various ways to prevent the diseases**
- (i) We can prevent disease in two ways :

  (a) General ways: By preventing exposure to infectious microbes.

  By providing safe drinking water and public hygiene.

  By providing proper and balanced diet

  (b) Specific ways : By immunisation.
- **Q2. State two principles of treatment of a disease.**
- **A.** There are two ways to treat an infectious disease :

  (i) By reducing the effect of the disease

  (a) By symptomatic treatment. (b) By taking a bed rest

  (ii) By killing the microorganisms that act as infectious agents.

Chapter 14 NATURAL RESOURCES

- **Q1. In coastal area, wind current moves from the sea towards the land during day but during night it moves from land to the sea. Discuss the reason.**
- **A.** Air moves from a region of high pressure to a region of low pressure. Air above the land gets heated quickly during day and starts rising. This creates a region of low pressure as a result of which air above the sea rushes into this area of low pressure. This movement of air from one region to other creates winds. During night, as water cools down slowly, the air above water is warmer than the air on land. So, air moves from land to sea creating winds.
- **Q2. Describe the major factors which lead to water pollution.**
- **A.** The following are the major factors which lead to water pollution:
- The addition of undesirable substances to water bodies. For example, addition of industrial wastes containing poisonous salts like pesticides, insecticides, etc. are fatal for aquatic life.
- The removal of desirable substances from water bodies. For example, depletion of dissolved oxygen and nutrients has adverse effects on aquatic life.
- Change in temperature of water in the water bodies. The aquatic animals are adapted to live under certain temperature range. A sudden change of temperature may affect breeding of aquatic animals, their eggs and larvae, etc. For example, pouring of water at very high temperature from nuclear reactors may cause death of fishes and aquatic animals. Similarly, pouring cold water from dams also affects aquatic life adversely.

Chapter 14 NATURAL RESOURCES

- **Q1. How do fossil fuels cause air pollution?**
- **A.** The combustion of fossil fuels like coal, petroleum, etc., not only produces energy but also produces oxides of nitrogen and sulphur like carbon monoxide, sulphur dioxide, oxides of nitrogen as well as smoke particles. These gases accumulate in the atmosphere and leads to inhalation problems, acid rains, and increase in the amount of suspended particles in the air.
- **Q2. How is carbon dioxide fixed?**

A. Green plants convert carbondioxide into glucose in the presence of sunlight by the process of photosynthesis.

Many marine animals use carbonates dissolved in sea water to make their cells.

Q3. Name the processes which help to maintain the balance between oxygen and carbon dioxide in the environment.

A. Photosynthesis and respiration.

Chapter 15 IMPROVEMENT IN FOOD RESOURCES

- **Q1. In agricultural practices, higher input gives higher yield. Discuss how?**
- **A.** Higher input means good financial conditions of the farmers so that they can employ good and improved farming technologies. Thus these would give higher yields.
- **Q2. How is culture of Pomphret and Mackeral different from that of Catla and Rohu?**
- **A.** Pomphret and Mackeral are marine fishes cultured in sea water called mariculture. Whereas Catla and Rohu are freshwater fishes grown in inland fisheries like ponds, canals, reservoirs and rivers called composite fish culture.
- **Q3. An Italian bee variety A. mellifera has been introduced in India for honey production. Write about its merits over other varieties**
- **A.** Merits of Italian bee variety A. mellifera are:

  a) It stings less.

  b) It has high honey collection capacity.

  c) It stays in the given beehive for longer periods and breeds very well.

Chapter 15 IMPROVEMENT IN FOOD RESOURCES

- **Q1.What mineral nutrients are supplied to the plants by air, water and soil?**
- **A.** Air supplies two nutrients to plants namely carbon and oxygen. Water supplies hydrogen and soil supplies thirteen nutrient elements to the plants. Among these thirteen nutrients, six are macronutrients and the other seven nutrients are micronutrients. Macronutrients are nitrogen, phosphorus, potassium, calcium, magnesium and sulphur while the micronutrients are iron, manganese, boron, zinc, copper, molybdenum and chlorine.
- **Q2. What do you understand by organic farming?**
- **A.** Organic farming is a farming system in which there is minimal or no use of chemicals such as fertilisers, herbicides, pesticides, etc. There is maximum input of organic manure, recycled farm wastes, i.e., straw and livestock excreta, use of bio-agents such as culture of blue green algae in preparation ofbiofertilisers. Also, neem leaves or turmeric is used specifically in grain storage which act as biopesticides. It employs healthy cropping systems (mixed cropping, intercropping and crop rotation).