

SKILL ENHANCEMENT COURSE

SCIENCE AND LIFE

READING MATERIAL

Unit – One – Basic components of science and its brief idea.

Q1. Define a cell.

An. Cell is structural and functional unit of living organism.

Q2. What is difference between plant cell and animal cell?

An. Plant cell has cell wall whereas animal cell lack it.

Q3. What are important organelles (parts) of a cell?

An. Nucleus, mitochondria, ribosome, cytoplasm and chloroplast are some important organelles of a cell. Chloroplast however is absent in plant cell.

Q4. What is function of chloroplast?

An. Chloroplast synthesise food(carbohydrate) in presence of light. The process is known as photosynthesis. As animal cell does not posses chloroplast, they can not synthesise their own food.

Q5. What is function of mitochondria.

An. Mitochondria release energy from stored food. So it is also known as “ Power house of cell “.

Q6. What is nucleus?

An. Nucleus is the organelle which controls all functions of cell.

Q7. What are the parts of nucleus?

An. Nuclear membrane, nucleolus, nucleoplasm and chromatin materials are important parts of nucleus. Chromatin materials later on form chromosomes.

Q8. What is function of chromosome?

An. Chromosome is a rod shaped structure which contains gene. Gene bears the material which help in expression of character.

Q9. Can we see a cell by naked eyes.

An. Most of the cells are so small that we cannot see it by naked eye.

Q10. What is respiration?

An. Respiration is intake of oxygen gas and release of Carbon di oxide. The oxygen is used in burning of food and release of energy.

Q11. Chemically which type of reaction is involved in respiration?

An. Chemically respiration is oxidation of food.

Q12. What is oxidised in the process of respiration?

An. Carbohydrate is oxidised during respiration.

Q13. Which type of process is respiration? Living or non living?

An. Respiration is a living process.

Q14. Which organelle Of cell is involved in respiration?

An. Respiration is held in mitochondria.

Q15. What is digestion?

An. Digestion is physical breakdown of complex food into simple components.

Q16. What is role of enzyme in digestion.

An. Enzymes work as biocatalyst in the process of digestion.

Q17. What is chemical composition of enzymes.

An. Enzymes are protein in nature.

Q18. Name the organs where digestion takes place.

An. Digestion takes place in mouth, stomach and intestine.

Q19. What happens to digested food in body.

An. The digested food is absorbed in small intestine and then distributed in cell of body. Here it is oxidised and energy is released.

Q20. What do you mean by growth?

An. Growth refers to maturation and increase in size of body.

Q21. What are organic compounds.

An. Compounds having carbon atoms are known as organic compounds.

Q21. Compounds which lack carbon atom are called inorganic compounds.

Q23. What are macromolecules?

An. Molecules containing very large number of atoms are called macromolecules.

Q24. What are examples of macromolecules?

An. Proteins, carbohydrates and fats are common macromolecules.

Q25. What are carbohydrates?

An. Carbohydrates are macromolecules which contains carbon oxygen and hydrogen atoms. They are found in cells of plants and animals.

Q26. What are proteins?

An. Proteins are long chain of amino acids which in turn contain Carbon, Nitrogen and oxygen atoms.

Q27. What is function of protein?

An. Proteins are building block of body of any organism. All enzymes are proteins which help in various functions of body.

Q28. What is diffusion?

An. Movement of any molecule from a place of its higher concentration to a place of lower concentration through a medium is called diffusion.

Q29. What is turgor pressure?

A. Turgor pressure is the pressure exerted by water present inside the cell on internal membrane is called turgor pressure.

Q. 30 what are water soluble vitamins?

A. Vitamin B complex and Vitamin C.

Q.31 What are the fat soluble vitamins?

A. Vitamin A, D, E, K.

Q. 32.How many vitamins together form Vitamin B Complex?

A. Eight (B1, B2, B3, B5, B6, B7, B9, B12).

Q. 33 What is the scientific name of Vitamin B9?

A. Folic acid.

Q.33, What is the scientific name of Vitamin B5?

A. Niacin or nicotinic acid.

Q. 34.what is the deficiency symptom of Vitamin K?

A. continuous bleeding and prevention of blood coagulation.

Q. What are Source of Vitamin D.

A. Fish oil, Butter milk, eggs.

Q. what is the disease caused by deficiency of vitamin B1?

A. Beriberi.

Q. What is the scientific name of Vitamin A and C?

A. Vitamin A- Retinol, C-Ascorbic Acid.

Q. What are the Vitamin B5 deficiency syndrome?

A. Pellagra, dermatitis, diarrhea.

Q. Name two disease caused by bacteria?

A. TB, Whooping cough.

Q. Name some disease caused by virus?

A. Chicken pox, influenza, mumps.

Q. What is the Causal organism of TB?

A. *Mycobacterium tuberculosis*.

Q. What is causal organism of Mumps disease?

A. Paramyxovirus.

Q. What are the symptoms of Influenza.

A. Sudden fever, dry cough, headache, nausea, diarrhoea.

Q. What is the full form of AIDS?

A. Acquired immune deficiency Syndrome.

Q. What is the causal organism of AIDS?

A. Human Immunodeficiency Virus (HIV).

Q. Name two DNA virus?

A. Hepatitis B, Small pox, Herpes.

Q. Name two RNA virus?

A. Influenza, Polio, Common cold, Hepatitis C.

Q. What is the scientific name of UlatKambal?

A. *Abroma augusta* : Linn.

Q. What is the medicinal use of Latjira, Chirchiri(*Achyranthes aspera* : Linn)?

A. Fresh root about 9 cm. long issued as stick for causing abortion.

Tribes apply macerated roots to get relief of pain from scorpion stings.

Q. What is the scientific name family of Neem?

A. *Azadirachta indica* : A. Juss, Family- Meliaceae.

Q. What is the scientific name of Palas (State tree of Jharkhand) ?

A. *Butea monosperma* (Lam), Family- Fabaceae)

Q. What is the medicinal use of Kalmi(*Ipomoea Alba* : Linn)?

A. Santhals apply leaf paste after warming for treatment of swelling of legs due to sprain. Powder of dried plants is used for killing bed bugs. Tribes apply latex as cure for wounds and prescribe dried seed powder about 15 gm as laxative.

Unit III

Science and food security.

a. Green revolution and second green revolution.

Q. Who is known as 'The father of Green Revolution'?

A. Norman Borlaug.

Q. Who was the first to use the term 'Green Revolution' in 1968?

A. William Gaud.

Q. What is the full form of IRRI?

A. International Rice Research Institute.

Q. Where is the headquarters of the IRRI?

A. Los Banos, Philippines.

Q. Who is Known as 'The Father of Indian Green Revolution?

A. M.S. Swaminathan.

Q. Which Indian state was selected first for the implementation of Green Revolution?

A. Punjab.

Q. Which are the major Kharif crops?

A. Paddy, Millet, Maize, Sugarcane, and Soybean.

Q. Which are the main Rabi crops?

A. Wheat, Barley, Gram, Mustard and Linseed.

Q. Yellow revolution associated with which crop?

A. Oil seed.

Q. White revolution associated with which production?

A. Milk.

Q. Silver fibre revolution associated with which crop?

A. Cotton.

Q. Round revolution associated with which crop?

A. Potato.

Q. Golden fibre revolution associated with which crop?

A. Jute.

Q. Which rice variety developed by the IRRI was dubbed 'Miracle Rice'?

A. IR-8.

b. common food plants- crops, vegetables, fruits and spice.

Q. Onion shows modification of which part for food storage?

A. Stem.

Q. Carrot has what type of root?

A. Tap root.

Q. The Queen of Spices is.....

A. Cardamom.

Q. The aromatic volatile components of spice are called what?

A. Spice oil.

Q. Chillies are pungent because of having what compound?

A. Capsaicin.

Q. From where the white pepper is obtained?

A. White pepper is obtained from ripened berries by removing the pulp.

c. Agricultural science of Jharkhand.

Q. Name one upland rice research station of Jharkhand.

A. Central Rainfed Upland Rice Research Station (CRURRS), situated at Hazaribag.

Q. Name one Gums and Resins institute of Jharkhand?

A. Indian institute of natural resins and gums, formerly known as Indian lac research institute, (Situated at Namkum, Ranchi).

Unit IV

Science Environment and Man.

a. Basic idea of climate changes and its impact.

Q. What is the greenhouse effect?

A. When gases are trapped in the earth's atmosphere causing a rise in temperature/ climate.

Q. What are the consequences of global warming?

A. Drastic climate change, weather pattern change, loss of biodiversity, glaciers are melting etc.

Q. Reducing the amount of future climate change is called what?

A. Mitigation.

Q. What is the most visually striking evidence of global warming?

A. Rapid melting of glacial ice on nearly every continent.

Q. What do you mean by climate?

A. the long-term average weather and its statistical variation for a given region.

Q. What are the main greenhouse gases?

A. Methane, CO₂, CO, CFC, Sulphur Di-oxide.

Q. Which one of the energy source do not increase carbon emissions?

A. Nuclear power plants.

Q. What is greenhouse gas?

A. A greenhouse gas is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range.

Q. What are the primary greenhouse gas in Earth's atmosphere?

A. Water vapour, carbon dioxide, methane, nitrous oxide and ozone.

b. Environment problem, its impact and management.

Q. What is water pollution?

A. Water pollution is the contamination of Water bodies by various water pollutant.

Q. Name some organic water pollutants.

A. Detergents, disinfection by-products found in chemically disinfected drinking water, food processing waste, insecticides, herbicides, petroleum hydrocarbons etc.

Q. What is air pollutant?

A. An air pollutant is a substance in the air that can have adverse effects on humans and the ecosystem.

Q. Give examples of Air pollutant.

A. solid particles, liquid particles and gases.

Q. What is primary pollutant?

A. Primary pollutants are usually produced from a process such as from a volcanic eruption. CO gas form motor vehicle exhaust etc.

Q. What is secondary pollutant?

A. Secondary pollutant are not emitted directly, rather they form in the air when primary pollutants are reacting or interact. Eg. Ground level ozone.

Q. What is acid rain?

A. Acid rain is rain or any other form of precipitation that is unusually acidic, it possesses elevated levels of hydrogen ions.

Q. what is the cause of Acid rain?

A. Acid rain is caused by emission of sulfur dioxide and nitrogen oxide, which reacts with the water molecules in the atmosphere to produce acids.

c. Environmental awareness.

Q. What is Chipko movement?

A. The Chipko movement was primarily a forest conservation movement in India that began in 1973.

Q. United nations declared World Environmental Day (WED) in which date?

A. 5th June every year and first held in 1973.

Q. When and where Earth Summit 2002 took place?

A. Johannesburg, South Africa, from 26th August to 4th September, 2002.

Q. When and where Earth Summit 2012 took place?

A. In Rio de Janeiro, Brazil. from 13th to 22th June, 2012.