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## Science One Liners – Part 4

### Biology

1. Micro organisms
2. Life Process control and Co Ordination
3. Food Production and Management
4. Environmental Science
5. Evolution of Life

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#### MICRO ORGANISMS

- The organisms which cannot be seen with naked eye but can be seen in the microscope are called Microorganisms
- The branch of biology that deals with the study of microorganisms is called Micro biology
- The scientist who has made pioneering contribution the field of micro biology are Louis Pasteur and Robert Koch
- The first person to show that organisms come only from pre existing living organisms was Louis Pasteur
- The technique of killing microorganisms by using appropriate heat treatment is called Pasteurization
- The pasteurization method is used to Preserve milk
- The method of getting resistance to the disease causing microorganism by introducing killed germs in the body is called Vaccination
- The vaccination against the disease Cholera was invented by Louis Pasteur

- The vaccine against the disease Chicken pox was invented by Louis Pasteur
- The scientist who played a important role in the development of Bacteriology was Robert Koch
- The steps suggested by Robert Koch to determine whether a certain germ causes a particular disease is called Koch's postulate
- Robert koch was awarded Noble prize in 1905
- Robert Koch was awarded noble prize for discovering the cause of tuberculosis
- The bacteria responsible for the disease Anthrax was identified by Robert Koch
- The bacteria that causes the disease Anthrax ix Bacillus Anthrasis
- The scientist who developed the technique for culturing bacteria in nutrient media was Robert Koch
- There are 5 major group of microorganisms
- Bacteria is used to turn milk into curds
- The bacteria which helps to enrich the soil with nutrients is Rhizobium
- The disease Whooping cough is caused by the bacteria Bordella Pertusis
- The disease Cholera is caused by the bacteria Vibrio Cholerae
- The disease Diptheria is caused by the bacteria Corynebacterium diptheriae
- The bacteria Mycobactetrium tuberculosis causes the disease Tuberculosis
- The bacteria Mycobactetrium Leprae causes the disease Leprosy
- An example for unicellular microscopic protozoan is Amoeba
- The vacuole present in amoeba that helps in the storage of food is food vacuole
- The vacuole present in amoeba that helps in the contractile excretion is Contractile vacuole
- An example for unicellular organisms of reproduction is Algae
- The simple aquatic microorganisms having chlorophyll are Algae
- The protozoa that causes the disease malaria is Plasmodium
- The disease Amoebic dysentery is caused by the protozoa Entamoeba histolytica
- The protozoa Trypanosoma gambiense causes the disease Sleeping sickness
- The disease Giardiasis is caused by the protozoa Giardia lamblia
- The cell wall of Chlamydomonas is made up of cellulose
- The multicellular microscopic organisms not having chlorophyll are called Fungi
- The fungi usually grow on the dead and decayed organic matter

- The microbial plants having no chlorophyll are Fungi
- An example for fungi is Mushroom
- The unicellular saprophytic organisms are yeast
- The antibiotic produced from the yeast mold is Penicillin
- The disease Athlete's foot is caused by Fungi
- The common fungal disease that affect the humans is ring worm
- The locomotory structure of chlamydomonas is flagellum
- Fermentation is caused by Yeast
- The bread or dosa dough rises due to the action of yeast cells
- The father of microbiology is Louis Pasteur
- The locomotory organs in amoeba are Pseudopodia
- The microorganism used in the bakery and beverage industry is Yeast
- The microorganism used to produce antibiotics and vaccines is Bacteria
- The disease typhoid in human beings is caused by Bacteria
- An example for protozoa is Euglena
- The microorganism which is used as the food material for aquatic organisms is Algae
- The extract of algae that is used in the preparation of medicines is Agar
- A virus that is capable of converting RNA into DNA is called Retrovirus
- The enzyme present in HIV which helps in the conversion of RNA into DNA is Reverse Transcriptase
- The ability of a body to fight infections is called Immunity
- Inflammation of the liver caused by infection or due to toxic substance is called Hepatitis
- HIV means Human Immunodeficiency Virus
- AIDS means Acquired Immuno Deficiency Syndrome
- ELISA means Enzyme Linked Immuno Sorbent Assay
- PCR means Polymerase chain reaction
- HBV means Hepatitis B Virus
- A WBC present in our body plays an immense role in immune system of body are Lymphocytes
- A person infected with HIV are termed as HIV Positive
- The incubation period in HIV infected adult is 8-10years

- A disease of the liver characterized by yellowing of skin and whites of the eye is called jaundice
- The disease in which the defence mechanism of the human body is destroyed is AIDS
- The causative organism of AIDS disease is HIV
- The most dangerous of hepatitis virus is Hepatitis B
- The genetic material of HIV is RNA
- The city in which the first infected HIV person was detected in India at Chennai (1987)
- The confirmatory test for HIV is Western Blot
- AIDS was first recognized in USA in the year 1981
- AIDS was first identified in 1981 in India
- The enzyme reverse transcriptase present in HIV helps to convert RNA into DNA
- HIV in the human body kills T lymphocytes
- The primary effect of HIV infection is reduction in immunity
- Polymerase Chain Reaction is a test for HIV
- ELISA test is used to screen blood samples for HIV
- Hepatitis means the inflammation of Liver
- The disease that has no vaccine is AIDS
- The group of symptoms and signs which when taken together characterize a pathological condition is called Syndrome
- The name HIV for AIDS virus was suggested by international committee on nomenclature of viruses
- An disease causing agent may be a microbe or vaccine is called Intruder
- The chemical factory of the body is Liver
- The pigment found in RBC is Bilirubin
- The countries more affected by Hepatitis B are India and china
- The 50% of HIV injected people are known to develop AIDS
- World AIDS foundation is in Switzerland
- The incubation period of HIV infected children may be about 18 to 24 months
- HIV belongs to the retrovirus group of viruses
- Common secondary infection of HIV patient is Herpes
- About 1% of the total death all over the world is due to Hepatitis B
- A drug addict is more prone to affect with AIDS because he becomes weak

- Liver is the organ that carries the function of metabolism of digested food
- During jaundice the persons skin and eyes turns yellow because of excess of Bilirubin
- Hepatitis B spread through blood plasma
- As soon as HIV infects a person it destroys WBC
- The vaccination for small pox was given by Dr Edward Jenner
- The size of virus varies form 0.015 to 0.2 micron
- The size of Bacteria varies form 0.2 to 10 micron
- The conditions required for the growth of bacteria are optimum temperature and humidity
- The link between the living and non living things is Virus
- The polio vaccine in 1953 was given by Janas salk
- The sixe of protozoans vary from 2 to 200 microns
- The parasite that causes amoebic dysentery is Entamoeba
- The parasite that causes sleeping sickness is Trypanosoma
- The parasite that causes malaria is Plasmodium
- The mass of algae in the sea is called Sea weeds
- The two algae useful in the biological nitrogen fixation is Azolla and Nostoc
- Pencilium notatum is used to prepares the antibiotic pencillin
- The disease that spreads through different medium from one person to another are called Communicable diseases
- The disease tetanus is caused by Clostridium tetani
- The disease tuberculosis is caused by Mycobacterium tuberculosis
- The disease chlolera is caused by vibrio cholera
- The disease Typhoid is caused by Salmonella typhi
- The disease Leprosy is caused by Mycobacterium leprae
- The disease plague is caused by Yerssinia pestis
- The disease Anthrax is caused by Bacillus anthracis
- The disease Rabies is caused by Rabdo Viridae
- The disease mumps is caused by mumps virus
- The part of the body affected by the polio is brain and spinal cord
- The blast disease is seen in paddy and ragi crops
- The disease sheath blight is seen in Paddy

- The disease Ring spot is seen in Sugarcane
- The microorganism used in the tanning of leather is Bacteria
- The microorganism which is the food for aquatic animals is Algae.

### LIFE PROCESS CONTROL AND CO ORDINATION

- The basic functions carried out by all living beings to support and sustain life is called Life process
- The living beings need energy to sustain life process
- The process by which the organism obtain their food, digest and assimilate is called nutrition
- The method of nutrition in which the organisms prepare their own food is called Autotropic nutrition
- The process by which the green plants prepare their own food is called Photosynthesis
- The mode of nutrition in certain type of bacteria in which food is obtained from chemical energy is called Chemosynthesis
- The organisms that prepare their own food are called Autotrophs
- The organisms that depend on others for food are called Heterotrops
- The raw materials needed for the process of photosynthesis are Carbon dioxide and water
- Carbon dioxide + water ----- Glucose + water + oxygen
- The pigment in geen plants that helps in photosynthesis is chlorophyll
- The phase of photosynthesis that takes place in the absence of sunlight is called Dark reaction
- The dark reaction occur in the stroma of the Chloroplast
- The dark reaction of photosynthesis is known as Calvin cycle
- The phase of photosynthesis that takes place in the presence of sunlight is called Light reaction
- The light reaction takes place in the grana of Chloroplast
- The rate of photosynthesis if found to be optimum between the 30°C and 35°C
- The method of nutrition in which the organisms obtain their food from other organisms is called Heterotropic Nutrition
- The phenomenon of organisms obtaining food from other organisms is called Heterotrophism

- An example for Autotrops is Green plants
- An example for Heterotrops is Animals
- An example for Herbivore is Rabbit
- An example for Carnivore is Lion
- An example for Omnivore is dog
- An example for Saprophytes is Bacteria
- An example for Parasite is Tapeworm
- The organisms living in or on the other organisms and obtain their food are called Parasites
- An example for semiparasites is Viscum
- An example for Total parasites is Cuscuta
- The plants that obtain the nitrogenous substance from insects are called Insectivorous plants
- An example for insectivorous plants is Drosera
- The green plants that grow on trees for support are called Epiphytes
- An example of Epiphytes is Orchids
- The association of dissimilar organisms in which they live together for mutual benefit is called Symbiosis
- An example for symbiosis is the relation between the algae and fungi
- The digestive organs in hydra are Gastro vascular cavity
- The digestive organs in Earthworm is Digestive canal
- The process of taking food in the body is called Ingestion
- The process in which the food in the form of complex organic molecules is broken down into simple molecules in the body of an animal is called Digestion
- The process in which the digested food gets into the blood stream is called Absorbtion
- The process of converting the digested food into protoplasm is called Assimilation
- The process by which the undigested food is eliminated from the body of an organism is called Egestion
- The human beings are called Omnivores because they consume both plants and flesh
- The process in which the food is broken into smaller particles and is converted into a fine paste with the help of teeth and tongue is called Mechanical digestion

- The process of breaking up of complex food molecules into simple food molecules through chemical action is called Chemical digestion
- A long tube in the human body that extends from the mouth to the large intestine that helps in the digestion of food is called Alimentary canal
- The glands that are located in the buccal cavity and secrete salivary juice are called salivary glands
- The digestive enzyme present in saliva is Amylase
- Amylase converts starch into maltose
- The tooth is made up of hard material called Dentine
- The projected part of the teeth are covered with Enamel
- In humans there are 4 kinds of teeth
- The kind of teeth that help to cut food are Incisors
- The function of canines is to help to tear the food
- The kind of teeth molar are used to grind the food
- The food we consume is converted into soft ball which can be easily swallowed is called Bolus
- The common passage for food and air in the throat that leads to the oesophagus is called Pharynx
- The larynx is located in the Oesophagus
- The beginning of the wind pipe is called Larynx
- The cartilaginous flap present in larynx is Epiglottis
- A part of the alimentary canal that extends from the pharynx to the stomach is called Oesophagus
- The movement caused by the contraction and relaxation of muscles in the alimentary canal is called Peristalsis
- The enzyme in the gastric juice that acts upon the food in the stomach is Pepsin
- The two enzymes present in Gastric juice are Pepsin and Rennin
- The digestive juice that does not contain enzymes is Bile juice
- The part that connects the stomach and small intestine is Duodenum
- The finger-like structure located at the junction of small and large intestine is Appendix
- The digestive juice secreted by the Gastric glands is Gastric juice
- The digestive juice secreted by Pancreas is Pancreatic juice

- The digestive juice secreted by Inner walls of small intestine is Intestinal juice
- The digestive juice secreted by liver is Bile juice
- The acid present in gastric juice is HCl
- Villi is located on the walls of small intestine
- The finger like structure that helps to absorb the digested food by blood present on the walls of small intestine is Villi
- The chief cause for the disease Jaundice is Addiction to alcohol and drugs
- The chief cause for the digestive disease Obesity is over eating
- The chief cause for the disease Constipation is inadequate roughage in food
- The respiration that uses oxygen to break down organic compounds is called Aerobic respiration
- The respiration that takes place with out oxygen is called Anaerobic respiration
- The exchange of gases that take place during respiration between the medium and blood is called External respiration
- The exchange of gases that take place during respiration between the blood and the body cells is called Internal respiration
- The wind pipe that leads from throat starting from the larynx to the point where it bifurcates into two branches is called Trachea
- The finest branch of bronchiole that ends in structures are called Sacs
- The chief organ of respiration in human beings is Lungs
- A sheet of muscle located below the lungs is called Diaphragm
- The function of Diaphragm is to help in breathing movements
- The process of breathing of air into the lungs is called Inspiration
- The process of breathing of air out of lungs is called Expiration
- The inspiration process is also known as Inhaling
- The expiration process is also known as exhaling
- The normal rate of breathings in adults are 18-20times per minute
- The gas that is liberated during photosynthesis is Oxygen
- Fungi absorb food through Hyphae
- The tissue that covers the aerial root of epiphytes is Valamen
- Lichen is a combination of Algae and fungi
- The exchange of gases in lungs takes place by the diffusion

- The enzyme in the stomach that converts proteins into poly peptides is Pepsin
- The organ directly affected by jaundice is Liver
- The mode of nutrition in green plants is called Holophytic
- The part of our nervous system consisting of the brain and the spinal cord together is called Central nervous system
- The part of our nervous system consisting of 12 pairs of cranial nerves and 31 pairs of spinal nerves is called Peripheral nervous system
- The part of our nervous system which controls and co-ordinates the functioning of internal organs of the body is called Autonomic nervous system
- The glands which have ducts for discharging their secretion to the target organs are called Exocrine glands
- The glands that lacks ducts and pass their secretion into the surrounding blood for transport to the site of action is called Endocrine glands
- The chemical substances secreted by endocrine glands are called Harmones
- The peripheral nerves arising from the brain are called Cranial nerves
- The peripheral nerves arising from the spinal cord are called Spinal nerves
- The three membranes covering the brain and spinal cord are together are called Meninges
- Male or female reproductive organs which produce sex cells are called Gonads
- A disease caused by the deficiency of iodine in our body is Goiter
- The characteristics of living beings to respond to the changes in their environment is called Irritability
- The three general components of nervous system are receptors, effectors and conductors
- The component of nervous system which receives the stimulus is called Receptor
- The organ which a visible response is called Effectors
- The tissues which carry messages between the receptors and effectors are called Conductors
- The receptors in higher order animals are Sense organs
- The effectors in higher order animals are muscles and glands
- The conductors in higher order animals are Nerves
- The brain is protected by the bony case called Cranium

- The dark colored tissues of the central nervous system composed mainly of nerve cells is called Grey matter
- The light colored tissues of the central nervous system composed of mainly nerve fibers is called White matter
- The ability of the central nervous system to store the information and recall it in the later time is called Memory power
- The three main parts of the hind brain are Pons, cerebellum and medulla oblongata
- The part of the hind brain that connects the medulla oblongata and the thalamus is called Pons
- A long and cylindrical structure that extends from medulla oblongata and runs through the vertebral column is called Spinal cord
- The path traveled by an impulse in a reflex action is called Reflex arc
- The nerves which contain both sensory and motor fibres are called Mixed nerves
- The organs which assist us to sense changes in our environment are known as Sense organs
- The nerve that carries information from the rod cells and cone cells of the retina to the brain are called Optic nerve
- The screen of eye on which the images of the objects are formed is Retina
- The muscular coat of the eye ball is Sclera
- The pigment present in rods is Rhodopsin
- The pigment present in cones is Iodopsin
- The cells associated with the sense of taste are called Taste buds
- The tube that connects the middle ear to the throat (pharynx) is called the Eustachian tube
- The taste buds for sweetness are located at the front of the tongue
- The taste buds for the salt taste are located at the anterior margin of the tongue
- The taste buds for sour taste are located at the sides of the tongue
- The taste buds for the bitter taste are located at the posterior region of the tongue
- A cell, tissue or an organ which secretes useful chemicals required for various functions of the body are called a Gland
- The excessive secretion of the hormones by an endocrine gland is called Hyper secretion
- The inadequate secretion of the hormones by an endocrine gland is called Hypo secretion

- A pea shaped gland located beneath the hypothalamus in a body cavity at the base of the brain is called Pituitary gland
- Pituitary hormone is also called as Growth hormone
- The abnormally short stature due to the under secretion of growth hormone is called Dwarfism
- The abnormally long stature due to the over secretion of growth hormone is called Gigantism
- The disease caused by the excessive secretion of growth hormone in adults by pituitary gland is called Acromegaly
- Thyroid gland is located close to the trachea in the neck
- The hormone secreted by thyroid gland consisting of amino acid in combination with iodine is called Thyroxin
- Thyroxin is also called as Personality hormone
- The under secretion of thyroxin by the thyroid gland is called Hypothyroidism
- The disease characterized by swelling in the neck due to the enlargement of the thyroid gland is called Simple goiter
- A very low output of thyroxin by the thyroid gland in a new born baby leads to a disease Cretinism
- The excessive secretion of thyroxin by thyroid gland due to the over activity of the thyroid gland is called Hyperthyroidism
- The parathyroid glands are situated in the tissues of the thyroid gland
- The hormone secreted by the parathyroid glands is Parathormone
- Adrenal glands are located at the top of the kidneys
- The hormone secreted by the adrenal cortex is Cortisone
- The hormones secreted by the adrenal medulla are Adrenaline, Noradrenaline and Dopamine
- The important hormone secreted by the medulla of the adrenal gland is Adrenaline
- A small group of cells of the endocrine pancreas are together called Islet of Langerhans
- The sex hormones secreted by testis are called Androgens
- The male gonad is called Testis
- The female gonad is called Ovary
- The most common male sex hormone is Testosterone

- The sex hormones secreted by ovary is called Estrogens
- A female sex hormone produced by corpus luteum of the ovary is called Progesterone
- The most common female sex hormone is Estradiol
- The hormone that converts glucose into glycogen is Insulin
- The hormone produced by the endocrine pancreas is Glucagon
- The part of the brain that is concerned with the maintenance of the balance of the body is Cerebellum
- The quick response to stimulus produced without the involvement of the brain is called Reflex action
- The transparent covering in front of the eye is called Conjunctiva
- Ear is the sense organ in which the bone called Stirrup is associated
- The ability of the eye to adjust its focal length is called Power of accommodation
- The number of cranial nerves in human beings are 12
- The screen of the eye is called Retina
- The glands that produce tears are Lachrymal glands
- The type of lens used to rectify Astigmatism is Cylindrical lens
- The receptor cells that are responsible for colored vision is Cone cells
- The fluid filled in the chamber between the cornea and the eye lens is called Aqueous humour
- The part of the ear that converts sound waves into electrical signals is organ of corti
- The fluid that surrounds the inner ear is Perilymph
- The number of parathyroid glands in our body are 4
- Adrenal gland is also called as Suprarenal gland
- The chemical messengers in our body are Hormones
- The hormone that is often called the emergency hormone is Adrenaline
- The organs on which hormones act are Target organs
- The structure that controls reflex action is Spinal cord
- The gland embedded in another gland is Parathyroid
- The number of membranes covering the brain and spinal cord are 3
- The outer most layer of the meninges is called Durameter
- The middle layer of the meninges is called Arachnoid
- The inner most layer of the meninges is called Piameter

- The watery fluid that fills the space between the meninges is called Cerebro Spinal Fluid
- The cerebro spinal fluid in the central nervous system circulates between brain and spinal cord
- The part of human brain associated with thinking, reasoning and intelligence is Cerebrum
- The brain of adult human being weights about 1400gm
- The spinal cord is extension of Hind brain
- The two regions of the cerebrum are cortex and medulla
- The part of brain that is called the seat of consciousness is Cerebrum
- The folding in the cerebral cortex has increased the surface area
- The two major parts of diencephalons is Upper thalamus and Hypothalamus
- The body temperature, water balance, appetite and sleep are regulated by Hypothalamus of diencephalons
- The relay station for the transmission of messages is Mid brain
- Medulla oblongata is a reflex centre for respiration
- The part of brain that is mainly associated with involuntary activities is Medulla Oblongata
- The structure that controls reflex action is Spinal cord
- The center of reflex action is spinal cord
- Autonomic nervous system regulates all functions except learning and memory
- An activity controlled by autonomic nervous system is Peristalsis of the intestine
- The nerves carrying impulses to the central nervous system are known as Sensory nerves
- The largest cranial nerve is Vague nerve
- The two components of the autonomic nervous system which have opposing influence on the same organ are Sympathetic system and parasympathetic system
- Sympathetic nervous system causes secretion of saliva
- Parasympathetic nervous system causes decrease in heart beat
- The transparent portion of the sclera is called Cornea
- The jelly like fluid called Vitreous humor is filled in the eye ball between eye lens and retina
- Aperture that controls the light entering into the eye is pupil
- Cone cells are sensitive to colour and brightness
- The external ear which is a cartilaginous organ is called Pinna

- The part of ear that helps in balancing the body is semicircular canals
- Eustachian tube helps to equalize the pressure on either side of the ear drum
- The external ear is separated from middle ear by Tympanum
- Olfactory nerve connects nose to the brain
- Skin helps to perceive sensation of touch
- An example for endocrine gland is Salivary gland
- Deficiency of insulin causes increase in blood sugar
- Under secretion of thyroxin in adults causes Myxoedema
- The hormone that regulates the calcium level in the blood is Parathormone
- The development of secondary sexual characteristics in males is due to Testosterone
- A gland is an organ whose cells are specialized for producing a particular secretion
- The cortex is composed of Cytos
- The mid brain receives impulses from Eyes and Ears
- The number of cranial nerves originating from Pons are 4
- The nerves that carry responses from brain to the muscle are called Motor nerves
- The layer of tissue which binds the pupil above and below is Iris
- The spot which does not perceive any image is called Blind spot
- The inability to see in dim light is called Nyctopia
- The fluid present in the entire inner ear is Endolymph
- Deficiency of estrogen causes Infertility or sterility
- The average weight of the brain of new born child is 350gms
- The average weight of the brain of Adult woman is 1260gms
- The average weight of the brain of the one year child is 1000gms
- The part of the brain where we find convolutions is Cerebral cortex
- The receptor cell that are responsible for colored vision is Gustatory receptor cells
- The left part of the body is controlled by right part of the brain
- The right part of the body is controlled by left part of the brain
- The activity of progesterone secreted by the corpus luteum influence urine changes necessary for pregnancy
- The disease caused due to the unevenness of the refractive surface of cornea or the lens is called Astigmatism

- The entering of blood into the vitreous humour of eye is due to the disease called Diabetic Retinopathy
- The motor fibres of spinal cord originate from the Ventral horn
- The area on the retina opposite to the pupil, containing large number of cones and some what depressed is called Yellow spot or Fovea
- The relatively thick fluid filling space behind the lens is called Vitrous humour
- Midbrain serves as the relay station through which the impulses move from hindbrain to the forebrain
- The middle layer of the eye is Choroid
- The defect due to the bulging of eye ball or increased convexity of eye lens is called Myopia
- The defect in the accommodation of the eye due to the loss of elasticity of eye lens is called Presbyopia
- Deficiency of parathormone hormone leads to painful muscle cramps
- Pituitary is a tiny gland of size of the pea, situated at the base of the brain
- The bacteria which produces human insulin is Escherichia coli
- The hormones secreted by islet of langerhans are Insulin and Glucagon
- A man becomes deaf after a head injury. Deafness in him is due to the damage of specific area of cerebrum
- The gland which is situated in the eye is Lachrymal gland
- The disorder caused due to hardening of eye ball is Glaucoma
- The nerve which connects ear to brain is auditory nerve
- A man is frightened by seeing a Snake the hormone secreted during that period is adrenaline
- The reason for injecting insulin to the diabetic patients is to maintain glucose level
- The organ system that transport the materials require by the organs to all the cells of the body is Transport system
- The transportation of water and dissolved salts through xylem against gravitational pull is Ascent of sap
- The transportation of food from the leaves to the stem and to storage regions through phloem is Organic translocation
- The proteins of plasma helpful in clotting of blood are Fibrinogen and Prothrombin

- The iron containing pigment in RBC is Haemoglobin
- The amount of RBC produced in bone marrow per second are 1.5 to 2 million
- The life span of RBC is 120 days
- The life span of WBC is 12 hours to 300 days
- The number of platelets in a cubic millimeter of blood are 2.5 to 5 lakhs
- The double layered sac that encloses the heart is Pericardium
- The fluid filled between the layers of Pericardium is Pericardial fluid
- The two upper chambers of heart are Auricles
- The two lower chambers of heart are Ventricles
- The muscular layer between the right and left parts of heart is Septum
- The valve between the right auricle and right ventricle is Tricuspid valve
- The valve between the left auricle and left ventricle is Bicuspid valve
- Aorta carries oxygenated blood to different parts of the body arises from the left ventricle
- Pulmonary artery carries the deoxygenated blood to the lungs
- The heart is made up of Cardiac muscles
- The contraction of heart muscles is called Systole
- The relaxation of heart muscles is called Diastole
- In an individual the number of heart beats are 72 per minute
- The instrument used to count the heart beat is Stethoscope
- The circulation of blood in the body is called Double circulation
- The course taken by blood between heart and lungs is Pulmonary circulation
- The course taken by blood between the heart and tissues is Systemic circulation
- The process by which the metabolic wastes are eliminated from the body is called Excretion.
- The process by which a plant loses water by evaporation is called transpiration.
- The excretory system of man includes two kidneys
- The tough connective tissue capsule covering each kidney is Renal Capsule
- The structural and functional unit of kidney is Nephron
- The cup shaped structure at the beginning of Nephron is Bowman's capsule
- The coiled tubule which contains a U shaped tubule in Nephron is called Henle's loop
- A branch of renal artery that enters the Browman's capsule breaks to form a tuft of capillaries is called Glomerulus

- The process of filtration of urine from blood is called Glomerular filtration.
- About 1.5 lts of urine is formed per day in every individual.
- The technique by which the patients suffering from kidney failure are treated is Dialysis
- The substance present in the hair is Keratin
- The pigment that gives colour to the skin is Melanin
- The blood pressure of a healthy individual is 120 / 80 mm Hg.
- An respiration that takes place by using oxygen is Aerobic respiration
- An respiration that takes place without the help of oxygen is Anaerobic respiration
- Taking in air through the nose into the lungs is called Inspiration
- Giving out air form the lungs into the atmosphere through nose is Expiration
- The instrument used to measure the blood pressure is Sphygmomanometer
- The flow of de oxygenated blood from the heart to the lungs giving up carbon di oxide observing oxygen and returning to the heart as oxygenated blood is Pulmonary circulation
- The flow of oxygenated blood from the heart to the cells of the body providing oxygen observing carbon di oxide and returning to the heart is called Systemic circulation
- The four types of blood groups are A, B, AB, and O.

### FOOD PRODUCTION AND MANAGEMENT

- The nutrients that are required in large quantities are called Macro nutrients
- The nutrients that are required in small quantities are called Micro nutrients
- An example for macro nutrient is Carbon
- An example for micro nutrient is Sodium
- A group of organic compounds consisting of Carbon , hydrogen and oxygen are called Carbohydrates
- The general formula of carbohydrates is  $C_x(H_2O)_n$
- Carbohydrates are classified based on the number of sugar units in them
- One gram of carbohydrate produce 1.7KJ of energy
- The sugar containing single sugar molecule are called Monosaccahrides
- The carbohydrates consisting of more than one but a few monosccahride molecules are called Oligosaccahrides
- The molecular formula of Glucose is  $C_6H_{12}O_6$
- The molecular formula of Monosaccharide Fructose is  $C_6H_{12}O_6$
- The molecular formula of Ribose is  $C_5H_{10}O_5$

- The carbohydrates containing more than hundred monosaccharide molecules are called Polysaccharide
- The polysaccharide consisting of numerous monosaccharide molecules is called Glycogen
- An example for Monosaccharide is Cellulose
- An example for Oligosaccharide is Sucrose
- An example for polysaccharide is Starch
- A mixture of copper sulphate, sodium citrate and sodium carbonate is called Benedict's solution
- The long chain organic compounds consisting of carbon, hydrogen and oxygen and containing  $-COOH$  group are called Fats
- The amount of fat desirable per day in an adult is 75gms
- The products produced by the hydrolysis of fats are Fatty acids and Glycerol
- An example for unsaturated fatty acid is Groundnut oil
- An example for Saturated fatty acids is Butter
- The fatty acids that are solid at room temperature are called Saturated fatty acids
- The fatty acids that are liquids at room temperature are called Unsaturated fatty acids
- The organic compounds made up of carbon, hydrogen, oxygen and nitrogen are called Proteins
- The essential building blocks required for the growth are Proteins
- The proteins are classified into various kinds based on the composition
- An example for simple protein is Albumin of Egg
- An example for Conjugate protein is Lipoprotein
- The molecules of protein that are made up of only amino acids are called Simple proteins
- The molecules of protein made up of both the amino group and non amino group are called Conjugate proteins
- Amino acids consist of an amino group and Carboxyl group
- An example for essential amino acid is Valine
- an example for non essential amino acid is Glycine
- One of the source of protein is wheat
- The science of crop cultivation or farming is called Agriculture
- The various activities involved in getting the good crops through agriculture are called Agricultural practices
- The upper most part of the earth's crust that supports the plant life is called Soil
- The top layer of the soil is called Feeding zone of the plants
- The process of turning and loosening of the soil in agricultural land is called Ploughing
- The tool used for loosening and turning of soil in agricultural practices is Plough
- The preparation of soil for sowing after turning the soil is called Leveling

- The process of placing the seeds in the soil for germination is called Sowing
- The sowing of seeds manually into soil is called Broadcasting
- The funnel like instrument having a long tube and tied to the back of plough is Seed drill
- The practice of growing seeds in nursery and transferring the seedlings from the nursery to the main field is called Transplantation
- A small plot of land where seedlings are grown for transplantation is called Nursery
- The tiny crop plants grown in nursery are called seedlings
- A natural organic substance that is used to enrich the soil is called Manure
- The commonly used manure by the Indian farmers is Animal dung
- The cultivation done using organic manure is called Organic farming
- The natural manure is Compost
- The chemical compounds that enrich the soil with nutrients essential for growth of plants are called Chemical fertilizers
- An example for nitrogenous fertilizer is Urea
- An example for Phosphatic fertilizer is Superphosphate
- An example for Potassium fertilizer is Potassium nitrate
- The over use of fertilizers causes Soil pollution
- The over use of chemical fertilizers causes Environmental pollution
- The living organisms which enrich the fertility of soil are called biofertilizers
- The bacteria Rhizobium is found in the root nodules of the leguminous plants
- The process of storing water and supplying it to the crops is called Irrigation
- The crop better irrigated by check basin method is Maize
- The crop better irrigated by sprinkler method is Coffee
- The crop better irrigated by Ridges and Furrows method is Cotton
- The crop better irrigated by the Drip irrigation method is mango
- The unwanted plants that grow along with crop plants are called Weeds
- An example of weeds is Parthenium
- The process of removal of unwanted plants from the agricultural land is called Weeding
- The process of removing the unwanted plants from agricultural land by hands is called Mechanical method
- The process of removing weeds by using certain type of chemicals is called Chemical weeding
- The process of removing weeds by employing other organisms is called Biological Weeding
- The chemical compounds that destroy the unwanted plants that grow along with crops are called Weedicides
- An example for Weedicide is MCPAS

- The insect that get rid of the weeds like Opuntia is Cochineal
- The method of control of growth of weeds by agricultural practices is called Cropping method of weeding
- The practice of growing different agricultural crops in the same field alternatively is called Crop rotation
- The practice of growing two or more crops simultaneously in the same agricultural land is called Mixed cropping
- Any organism that destroys or damages the crops are called Pests
- A common example of pests is Rats
- An example for soil borne disease is Smut patches and groundnut
- An example for air borne disease is Wheat rust due to fungus
- An example for seed borne disease is Leaf spot of paddy
- The plant disease are classified depending the mode of spreading
- The plant disease that spread through soil are called Soil borne disease
- The plant diseases that spread through air are called Air borne disease
- The plant diseases that spread through seed are called Seed borne disease
- Any chemical compound that is used to kill pests, rodents are called Pesticides
- An example for pesticide is DDT
- In India 70% of people are engaged in Agriculture
- The important occupation of the people of India is Agriculture
- A seed drill is used for sowing seeds
- The chief plant nutrients are Phosphorous, Potassium, Nitrogen
- The two common weeds are Grass and Amaranthus
- An example for mixed farming is Growing banana in coconut fields
- The process of changing the raw food materials into conveniently storable and readily usable is called Food Processing
- Any substance that lowers the quality of food is called Adulterant
- The instrument used to measure the density of milk is Lactometer
- The disease caused by the consumption of edible oil adulterated with argemone oil is Dropsy
- The movement of food materials from the producer to the consumer is known as Transportation
- The common adulterant used in Tea powder is Colored tea leaves
- The common adulterant used in Black pepper is Dry Papaya seeds
- The common adulterant used in Honey is Jaggery-Sugar
- The common adulterant used in cooking oil is Argemone oil
- The common adulterant used in Turmeric powder is Metanil Yellow

- The common adulterant used in Pulses (Tur dal) is Kesari dal
- The common adulterant used in Chilli powder is Colored saw dust
- The common adulterant used in sweets are Prohibited colors
- The common adulterant used in Rice are Sand, Soap Stones and Marble Chips
- The common adulterant used in Wheat flour is Talc powder and Chalk powder
- The common adulterant used in Coffee powder is Tamarind seed powder
- The common adulterant used in Milk is Water
- The common adulterant used in Soji is Sand, Soap stones and Marble chips
- The common adulterant used in Ghee and Butter is Vanaspathi
- ISI stands for Indian Standards Institution
- Prevention of Food Adulteration Act was promulgated by the government of India in 1954
- The complex activity of preserving the produced food and ensuring its proper distribution for use throughout the year is called Food Management
- Food adulteration is the process of lowering the nutritive value of food by adding substances of inferior quality
- The presence of argemone oil in the cooking oil can be tested by using nitric acid
- CFTRI stands for Central Food Technological Research Institute
- The adulterant vanaspathi in ghee and butter can be identified by using concentrated HCL
- FPO stands for Food Processing Organization
- AGMARK means Directorate of marketing and Inspection
- The density of pure milk is 1.026
- The adulterant of soji and iron filings can be separated by using a Magnet
- The washing soda in sugar affect our health causing intestinal disorders
- The Crimson red color is formed when HCl is added to the adulterated Ghee or butter
- The Reddish brown color is formed when  $\text{HNO}_3$  is added to the adulterated Cooking oil
- The metanil yellow the adulterant used in Turmeric powder may cause the disease Cancer
- The spoilage of food during transportation may occur due to the exposure of food to Heat and Frost
- The density of the unadulterated milk must give 1.026 reading on the lactometer
- The food stored in gunny bags get spoiled the reason for this is Humidity
- A man develops gastro intestinal disorder after eating sweets in fair the reason for this is Food Poisoning
- The general symptom of food poisoning is Vomiting and diarrhea
- The major energy releasing nutrients are Carbohydrates and Lipids

- The chief constituents require for the formation of tissues are Proteins, minerals and water
- Vitamins and minerals are called as Regulators
- The macromolecules which are stored in the body are Lipids
- The nutritional disorder that occurs due to excess intake of carbohydrates is Obesity
- The energy required by the average adult are provided by Carbohydrates
- Fats and Oils are called Dietary Lipids
- An example for non essential fatty acid is Glycine
- An example for essential fatty acid is Linoleic acid
- The defect caused by the excess of cholesterol in the body is Atherosclerosis
- The disease caused by the deficiency of Lipids in the diet is Phrynoderma
- The most common protein deficiency disorders seen in the developing countries are Kwashiorkor and Nutritional Marasmus
- The fat soluble vitamins are Vitamin A, D, E and K
- The water soluble vitamins are Vitamin B complex and C
- The disease that occurs due to the deficiency of Vitamin A is Night blindness
- The disease that occurs due to the deficiency of Vitamin D is Osteomalacia
- The disease that occurs due to the deficiency of Vitamin E is Sterility in rats
- The disease that occurs due to the deficiency of Vitamin K is Spontaneous bleeding
- The disease that occurs due to the deficiency of Vitamin B<sub>1</sub> is Beri Beri
- The disease that occurs due to the deficiency of Vitamin B<sub>2</sub> is Photophobia
- The disease that occurs due to the deficiency of Vitamin B<sub>3</sub> is Pellagra
- The disease that occurs due to the deficiency of Vitamin B<sub>6</sub> is Dermatitis
- The disease that occurs due to the deficiency of Vitamin Folic Acid is Reduction in number of RBC
- The disease that occurs due to the deficiency of Vitamin B<sub>12</sub> is Acute Anemia
- The disease that occurs due to the deficiency of Vitamin C is Scurvy
- The minerals reach the human body through salts in our diet
- The minerals play an important role in the metabolic activities
- The chief constituent of Teeth and bones is Calcium
- The deficiency of calcium cause Rickets
- The chief source of calcium are milk and milk products
- The deficiency of Iron causes Anemia
- The hormone secreted by the endocrine gland is Thyroxin
- The deficiency of Iodine causes Goiter
- The mineral required for the cardiac muscle functioning is Sodium
- The mineral that regulates the acid base balance in the body is Potassium

- The medium for all metabolic activities is Water
- The body temperature is regulated by Water
- The electrolyte balance in the cells and tissues is maintained by Water
- A diet which contains various nutrients in right proportions and include water and dietary fibers required by the body is called Balanced Diet
- The process if deterioration of food losing its nutritive value is called Food Spoilage
- The temperature favorable for the growth of microorganisms is 20 to 35<sup>o</sup>C
- The storage of food in cold temperature in the range of 6 to 8<sup>o</sup>C is called Cold Storage
- The storage of food below 0<sup>o</sup>C is called Freezing
- An example for food substance which are preserved by using salting is Lemon
- An example for food item stored using coating or wrapping is Egg
- An example for food item preserved using hot air drying is Grapes
- An example for food item preserved using vaccum drying is Milk powder
- An example for food item preserved using sun drying is Cereals
- An example for food item preserved using irradiation method is Fruits
- The storage of grains on a large scale in storage bins is called Grain silos.

### ENVIRONMENTAL SCIENCE

- Removal of fat from is also adulteration because the milk becomes less nutritive
- The living organism and their physical surrounding together constitute Environment
- The branch of biology that deals with study of interaction between the living organisms and environment is called Environmental science
- The living components of the environment are called Biotic components
- The non living components of the environment are called Abiotic components
- An example for biotic component is Animals
- An example for abiotic component is Soil
- An example for interaction between two abiotic components is temperature and Humidity
- As the temperature increases the humidity decreases
- Food spoils in summer faster due to increased activity of micro organisms
- The chief constituent of Protoplasm is Water
- The various sources available in the environment are called Natural resources
- An example for natural resource is Water
- The resources that get exhausted by their continous use are called Renewable resources

- The resources that do not get exhausted by their continuous use are called Non Renewable resources
- An example for renewable resource is Water
- An example for non renewable resource is Petroleum
- The destruction of forests for various reasons is called Deforestation
- The main reason for desertification is Deforestation
- The species of plants and animals that are fastly depleting due to certain factors are called endangered species
- An example of species that is already extinct is Dodo
- IBWL stand for Indian Board of Wild Life
- The abbreviation of WPSI is Wild life prevention Society of India
- WWF stands for World Wild life fund for Nature
- Expand SBWL–State Boards for Wild Life
- IUCN stands for International Union of Conservation of Nature and Natural Resources
- NWAP stands for Nation Wild Life Action Plan
- The water that is fit for drinking is called Potable water
- The main source of water to us is Rain
- The water available in the interior of the earth's crust is Ground water
- The main reason for the acute shortage of water is Increasing population
- The principal source of minerals is earth's crust
- The important constituent of food are Minerals
- The process of converting biodegradable and non biodegradable wastes into reusable form is called Recycling
- The waste materials that can be converted into simple non toxic materials by microbial activity are called Biodegradable waste
- The waste materials that cannot be converted into simple substances by microbes are called Non biodegradable waste
- An example for biodegradable waste is Vegetable peels
- An example for Non biodegradable waste is Plastic pipe
- Most of the organisms live in the temperature range of about 10 to 40°C
- An example for the endangered species is Asiatic lion
- The judicious use and management of resources is called Conservation

- The project undertaken by the government of India to increase the population of Tigers is Project Tiger
- The uncultivated plants and non domesticated animals are called Wild Life
- The physical and biological world that an organism lives in and with which it interacts is called as Environment
- The part of earth and the atmosphere which is inhabited by living beings is called Biosphere
- The microscopic organisms which feed on the dead remains other of other animals are called decomposers
- The cyclic movement of various nutrients in the biosphere is called Bio-geo chemical cycle
- The process of converting free gaseous nitrogen of the atmosphere into useful forms of compounds of nitrogen is called Nitrogen Fixation
- The undesirable changes in the physical, chemical and biological characteristics of the environment is called Environmental pollution
- The interacting system of organisms together with the environmental factors with which they interact is called Ecosystem
- The movement or entry of a chemical substance from the reservoir pool to the exchange pool is called Fixation
- The movement or entry of chemical substances from the exchange pool to the reservoir pool is called recycling
- The process of conversion of complex organic compounds like proteins into ammonium salts by the action of microorganisms is called Ammonification
- The process of conversion of ammonium salts into water soluble nitrates and nitrites by the action of bacteria is called Nitrification
- The process of conversion of nitrates in the soil into free gaseous nitrogen by the action of bacteria is called Denitrification
- The organism involved in the process of nitrogen fixation are Rhizobium and Blue green algae
- The organism involved in the process of Ammonification is Ammonifying bacteria
- The organism involved in the process of conversion of ammonia into nitrites is Nitrosomonas

- The organism involved in the process of conversion of nitrite into nitrates is Nitrobacter
- The organism involved in the process of Denitrification is Pseudomonas
- ATP stands for Adenosine triphosphate
- NADP stands for Nicotinamide Adenine Dinucleotide Phosphate
- The reservoir pool for phosphorous is Lithosphere
- Phosphorous cycle is also called as Imperfect cycle
- The pollutants which can be converted into harmless form either by quick dilution or by bacterial degradation are called Biodegradable pollutants
- The pollutants which cannot be changed into harmless forms by any known means are called Non-degradable pollutants
- The combination of smoke and fog is called Smog
- The layer of atmosphere that prevents the harmful radiations is Ozone layer
- A disease caused by the mercury pollution is called Minamata
- An example for insectivorous plant is Drosera
- The most abundant gas in the atmosphere of the earth is Nitrogen
- The bacteria that lives in the root nodules of the leguminous plants is Rhizobium
- An example for non biodegradable pollutant is DDT
- The chemical that kills pest is called Pesticide
- The two sulphur compounds that cause acid rain are Sulphur di oxide and sulphur tri oxide
- The gaseous product formed when organic materials are decomposed by bacteria is Carbon di oxide
- An example for sedimentary cycle is Phosphorous cycle
- The percentage of nitrogen in the atmosphere is about 79%
- The byproduct of respiration by plants and animals is Carbon dioxide
- The byproduct of photosynthesis is Oxygen
- Carbon dioxide is released into atmosphere during volcanic eruptions
- The movement of materials is very slow in the reservoir pool
- An example of a gaseous cycle is Carbon cycle
- Gaseous cycles are perfect cycles
- Nitrogen cycle is example for Perfect cycle
- The reservoir pool for gaseous cycle is atmosphere

- The life on earth is carbon based
- The carbon is fixed into the nutrient pool during photosynthesis
- Nitrogen fixation refers to the conversion of free nitrogen into useable chemical compounds
- Anabena and Nostoc can directly use atmospheric nitrogen
- The process which does not help in returning of nitrogen back to the reservoir pool is Nitrogen fixation
- Ammonifying bacteria converts nitrogenous waste into ammonium compounds
- An example for nitrifying bacteria is Nitrosomonas
- An example for denitrifying bacteria is Pseudomonas
- The amount of oxygen present in the atmosphere of the earth is about 20%
- The second most constituent of the atmospheric air is Oxygen
- The process of combustion of fuels draws oxygen from the reservoir pool
- The decomposition of organic matter releases carbon dioxide
- An example of a micronutrient is Phosphorous
- Phosphorous is required by the living organisms in minute quantities for building up of RNA and DNA
- Phosphorous is required by organisms for the formation of nucleic acids
- Phosphorous is found in the earth's crust as phosphate rocks and in bone deposits
- An example for biodegradable pollutant is Vegetable peel
- Photochemical smog in the atmosphere is usually caused by oxides of nitrogen
- Acid rain inhibits the growth of lichens on the trees
- Increase in the temperature of the earth due to excessive accumulation of gases like carbon dioxide and methane in the atmosphere is known as Greenhouse effect
- Excessive accumulation of chlorofluorocarbons in the atmosphere causes ozone layer depletion
- The chief source of air pollution in cities is Automobiles
- Ozone in the upper atmosphere are destroyed by Chlorofluorocarbons
- The group of plants that act as a indicator of sulphur dioxide pollution in air is Epiphytic lichens
- The molecule which has the greater affinity with hemoglobin of the blood is carbon monoxide

- Most hazardous metal pollutant present in automobile exhaust is Lead
- Release of superheated liquids into water bodies cause thermal pollution
- The progressive increase in the concentration of a chemical pollutant in higher trophic levels is known as Biomagnification
- The disease caused by consumption of polluted water is Amebiasis
- Cholera spreads due to consumption of polluted water
- BHC and DDT are chemical pesticides
- The abiotic factor in the atmosphere is Temperature
- The most abundant gas in the atmosphere of the earth is Nitrogen
- Replacing of old machines with new ones is the measure to check Noise pollution
- The air pollution that can oxidize rubber goods is chloro fluoro carbons
- The cyclic movement of the elements in the ecosystem from abiotic to biotic and vice versa is called Biogeochemical cycle
- The cycles in which the reservoir pool is the hydrosphere is called Perfect cycles
- The cycles in which the reservoir pool is the lithosphere is called Imperfect cycles
- The process by which the nitrogen is fixed by non biological or natural means is called Electro chemical fixation
- The energy rich compound which requires phosphorus, an essential micronutrient is ATP
- Major source of mineral nutrient is the decomposition of dead animals
- The blue green algae that is found in ponds and paddy fields which can absorb nitrogen is called Anabaena
- An increase in any constituents of the atmosphere which is harmful to the living beings and their environment are called Air pollution
- A typical biogeochemical cycle has 2 major components or pools
- The ozone layer is becoming thin due to the gases CFCs
- The poisonous gas released during the Bhopal gas incident was Methyl Isocyanate
- Nepenthes obtains its nitrogen supplement by digesting insects
- Biogeochemical cycles are interdependence between the living and non living components
- Phosphorous is an example for imperfect cycle because major part of the phosphorous forms sediments in the sea
- The insectivorous plants engulf insects in order to obtain Nitrogen

- Farmers grow pulses along with the food crops in order to maintain the fertility of the soil
- Phosphorous is essential requirements for the animals for the development of Bones
- The natural process by which phosphorous enters the exchange pool is by weathering of rocks
- Green house effect is caused due to the increased Carbon dioxide
- One of the steps of effluent treatment is neutralization of acids and alkanes
- Pesticides and insecticides must be used with more care because they may lead to biomagnifications
- People working in factories or industries should use ear plugs in order to protect the ear from high intensity sound
- The major component of the earth are Atmosphere, Hydrosphere, Lithosphere and Biosphere
- The functional component of the biosphere is known as Ecosystem
- The collection of individuals of a species that inhabit a given place at a given period of time is Population
- The large ecosystems which have occupied vast geographical areas that show identical climate condition is Biome
- The microorganisms that are found freely floating on the surface of water are called Planktons
- The members of algae which are capable of photosynthesis are Phytoplanktons
- The consumers which feed on phytoplanktons are Zooplanktons
- The part of sea upto where sunlight can penetrate is Euphotic Zone
- The part of sea or ocean where sunlight cannot penetrate is Abyss
- An ecosystem where water forms the living medium is Aquatic ecosystem
- Aquatic ecosystem where salt concentration is high is called Marine ecosystem
- Aquatic ecosystem where the salt concentration is less is called fresh water ecosystem
- An aquatic ecosystem where water is stationary or stagnant is Lentic Ecosystem
- An aquatic ecosystem where water is of flowing type is Lotic ecosystem
- An ecosystem where land forms the living medium is Terrestrial ecosystem
- The living components are known as Biotic
- The non living components are known as Abiotic

- The animals which obtain their food by directly feeding on the producers are called Primary consumers
- The animals which obtains their food by feeding on primary consumers are Secondary consumers
- The animals which feed on the secondary consumers are Tertiary consumers
- The organisms which obtain their food from dead and decay of other organisms are Decomposers
- The transfer of food energy from one level to another is called Food Chain
- The inter dependence and inter relationship between the different food chains of an ecosystem is called Food Web
- A pyramid that is constructed on the basis of the number of individuals that occupy each trophic level in a given area of ecosystem at a given period of time is Pyramid of numbers
- A pyramid that is constructed on the basis of the total body weight of individuals that occupy each trophic level is Pyramid of biomass
- A pyramid that is constructed on the basis of the amount of food energy available to each trophic level is Pyramid of Energy
- The phenomenon of increasing the concentration of certain chemical substances from one trophic level to another is called Biomagnification.

### EVOLUTION OF LIFE

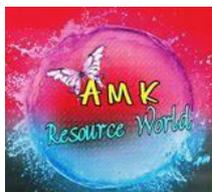
- The continuous and gradual change from simple life forms to complex organisms is called Organic evolution
- The earliest organisms to emerge on earth were Protozoa
- Lamarck's theory of evolution is called the theory of use and disuse
- The first scientist to give the scientific theory on organic evolution was Charles Darwin
- The famous book written by Charles Darwin is Origin of Species
- The book origin of species written by Darwin was published in 1859
- The scientist who propounded the theory of organic evolution by natural selection was Charles Darwin
- The one of the basis of Darwin's theory was Struggle for existence
- The feature of Darwin that the organisms which have favourable variations will succeed and survive is called Survival of fittest
- The remains of an ancient organism preserved in earth's crust are known as Fossils
- The branch of science that deals with the study of fossils is called Paleontology

- The first bird known to live during the late jurrasic period was Archaeopteryx
- The organs of different group of organisms having fundamental similarity of structure and postion are called Homologus organs
- The organs of different groups having different structure and performing similar functions is called Analogus organs
- The age of earth is estimated to be approximately 5 billion years
- The age of Invertebrates is called Proterozoic era
- The age of amphibians and fishes is called Paleozoic era
- The age of reptiles is called Mesozoic era
- The mammals belong to the age Coenozoic era
- The seed bearing plants emerged on the earth during the Mesozoic era
- The flowering plants emerged on the earth during the Coenozoic era
- Archaeopteryx is a link between reptiles and birds
- Darwin's theory of evolution is best described as Evolution by Natural selection
- Dinosaurs are ancient reptiles
- The competition amongst the organisms for resources is called Struggle for existence
- The Lamarckian theory of evolution was refuted by August Weismann
- The geographical era in which the first life emerged on earth was Proterozoic era
- The algae, fungi, protista emerged on the earth during the Mesozoic era
- The region where we find the remains of the ancient elephant that lived 1000 years ago Siberia
- The life emerged on earth in the oceans
- The technique of effecting the suitable changes in the genetic material is called Genetic Engineering
- A population of identical genes, cells or organisms derived from same the same parent by an asexual process is called Clone
- The process of producing genetically similar genes, cells or organisms from a common precursor is known as Cloning
- The hereditary determinant of an organism is Gene
- The technology used to manipulate genes in the laboratory is called recombinant DNA technology
- The technique of biotechnology used to identify the genetic relationship is called DNA finger print technology
- The cloning of first animal was done by Wilmur
- The first cloning was done in the year 1997
- The first cloned sheep is Dolly
- The application of biological process is called Biotechnology

- The scientist who gave the correct explanation of lactic acid fermentation was Louis Pasteur
- The person who invented the technique of fermentation of alcohol by yeast was Edward Bubner
- The term biotechnology was first used in Britain
- The cultivation of mushrooms was first introduced in France
- A technique of producing yeast on a large scale for bakery was developed in 1915 by Germans
- DNA finger print of two individuals are always different
- The technique of producing plants using a portion of it or just a few cells is called Tissue culture
- The one of the disadvantage of the genetically modified plants is sterility of seeds
- Tissue culture is helpful in producing new varieties of plants
- DNA finger print technology is more useful in the field of Forsenic science
- The branch of biology which deals with the study of microorganisms including their culture, economic importance and pathogenecity is called Microbiology
- The branch of biology which deals with the study of heredity and variation is called Genetics
- The substance produce by the distillation process is Alcohol
- The artificial cultivation of mushrooms was introduced by France in 1650
- The country in which the yeast is used in large scale in bakery is Germany
- National biotechnology board was established in 1982
- The department of biotechnology of India was established in 1986
- The DNA fragments are separated by using Gel Electrophoresis method
- The kind of laboratory required for Tissue culture is Sophisticated laboratory
- The biological processes taking place within the body of an organism is called In vivo
- The biological processes taking place in a cultural vessel or plate is called In vitro
- Production of daughter cells by strawberry runners is an example for Cloning
- Louis Pasteur explained lactic acid fermentation in 1857
- NBTB stands for National Bio Technology Board
- Separating a desirable gene from a cell and introducing it in another cell is called Recombinant DNA technology
- The application of technology using the characteristics of living organisms to obtain useful product is called Bio Technology
- Plant cells have the capacity to produce plants of their own kind' is the principle behind Tissue Culture
- It is possible to obtain high yielding and disease resistance plants by using Tissue culture

- Through the application of tissue culture it is not possible to maintain the balance in the nature
- The technique followed to develop large number of plants in a limited space is Tissue culture.
- The theory which explains the evolution in the light of natural selection of inherited characteristics is NeoDarwinism
- The carriers of heredity are Genes
- The term genetics was coined by Bateson in 1905
- The father of modern Genetics is Gregor Johann Mendel
- The mendelian factors are now called Genes
- The plants selected by Mendel to carry out his experiments was Pea plant
- A cross between two plants carrying one pair of contrasting characters is called Monohybrid cross
- A cross between two plants carrying two pair of contrasting characters is called dihybrid cross
- The checker board for F<sub>2</sub> generation was first designed by Punnett
- The ratio of the dihybrid cross of the Mendel experiment is 9:3:3:1
- The pair of factors for a given character separates in equal ratio at the time of gamete formation during meiosis is Law of Segregation
- When two organisms possess more than one set of traits, each pair of trait is inherited quite independently of the inheritance of the other pairs of factors is Law of independent assortment.
- The man belongs to the order Hominidae
- The ratio between the weight of brain and spinal cord in cat is 4 : 1
- The ratio between the weight of brain and spinal cord in Monkey is 8 : 1
- The ratio between the weight of brain and spinal cord in Man is 55 : 1

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