

1.HEREDITY AND EVOLUTION

- Mendel observed 7 pairs of contrasting characters in *Pisum sativum*. Which one of the following is not a part of that?
 - Tall and dwarf
 - Yellow and green seed colour
 - Terminal and axial flower
 - Smooth and rough stem
- Primitive man evolved in _____.
 - Africa
 - America
 - Australia
 - India
- Which of the following is inheritable?
 - an altered gene in sperm
 - an altered gene in liver cells
 - an altered gene in skin cells
 - an altered gene in udder cells
- The theory of Natural Selection was proposed by _____.
 - Charles Darwin
 - Hugo de Vries
 - Gregor Johann Mendel
 - Jean Baptise Lamarck
- Somatic gene therapy causes _____.
 - changes in sperm
 - changes in progeny
 - changes in body cell
 - changes in ovum
- In a pea plant, the yellow colour of the seed dominates over the green colour. The genetic make up of the green colour of the seed can be shown as _____.
 - GG
 - Gg
 - Yy
 - yy
- Some people can roll their tongue and this is a genetically controlled auto-somal dominant character. [Roller = RR / Rr; Non-roller = rr] A child who can roll the tongue has one brother who is a non-roller and two sisters who are rollers. If both the parents are rollers, the genotypes of their parents would be _____.
 - RR x RR
 - Rr x Rr
 - RR x rr
 - rr x rr
- Hydra, a multi-cellular invertebrate of phylum cnidaria(coelenterata) can give rise to new offspring by various methods. Choose the method by which the offspring are produced with significant variations.
 - budding
 - regeneration
 - sexual reproduction
 - asexual reproduction
- The following are the events in the formation of the first cloned animal – the sheep Dolly.
 - Removal of haploid nucleus from the ovum.
 - Implantation of ovum with diploid nucleus into the surrogate mother.
 - Collection of udder cell from the sheep.
 - Injection of diploid nucleus of udder cell into the enucleated ovum.
 - Development of a young clone.The correct sequential order of these events is _____.
 - abcde
 - cabed
 - cadbe
 - edcba
- The following are statements about stem cells:
 - There are unspecialised / undifferentiated cells.
 - They can be transformed into any type of body cell.
 - They can multiply rapidly to form a large number of similar types of cells.
 - They cannot transform into cardiac cells or nerve cells.
 - They are obtained from reproductive progeny only.The correct statements are _____.
 - a, b, c only
 - c, d, e only
 - a, c, e only
 - b, c, e only
- In persons suffering from insulin-dependent diabetes, _____ the cells of pancreas are degenerated.
 - Alpha
 - Beta
 - Gamma
 - Delta
- Identical twins are born as a result of fertilization between _____.
 - two eggs and two sperms
 - two eggs and one sperm
 - one egg and one sperm
 - one egg and two sperms
- Identify the incorrect statement about identical twins.
 - developed from a single zygote
 - always of the same sex
 - look alike in many aspects
 - differ in their blood groups
- The correct statement about Neanderthal man is:
 - the first human like hominid
 - started agriculture
 - ate meat and walked erectly
 - buried the dead
- The inheritance of characteristics through generation is called “heredity”. In Mendel's *Pisum sativum* plant, the genetic material present is _____.
 - DNA
 - RNA
 - Protein
 - Cytoplasm

2. IMMUNE SYSTEM

- Pick out a case of healthy state of an individual.
 - Mr. X is recovering from an infectious disease.
 - Mr. Y takes insulin injection everyday .
 - Mrs. Z is very depressed.
 - Mr. K does his duty and spends time joyfully.
- Which one of the following is not socially balanced ?
 - He enjoys a birthday party.
 - He behaves rudely over trivial matters.
 - He adjusts well to the surrounding situation.
 - He attends to his ailing mother at the hospital.
- _____ is a bacterial disease.
 - Meningitis
 - Rabies
 - Tetanus
 - Small pox
- One of the following is transmitted through air. Find it out.
 - Tuberculosis
 - Meningitis
 - Typhoid
 - Cholera
- The most serious form of malaria is caused by Plasmodium _____.
 - ovale
 - malariae
 - falciparum
 - vivax
- An example of protozoan infecting our intestine is _____.
 - Plasmodium vivax
 - Entamoeba histolytica
 - Trypanosoma gambiense
 - Taenia solium
- One of the means of indirect transmission of a disease is _____.
 - sneezing
 - coughing
 - through placenta
 - using utensils of patients
- When antibodies, extracted from other animals are injected into your body, what kind of immunity do you gain?
 - Artificially active acquired immunity
 - Artificially passive acquired immunity
 - Naturally active acquired immunity
 - Naturally passive acquired immunity
- The first vaccine injected into a just born baby is _____.
 - Oral polio
 - DPT
 - DPT and Oral polio
 - BCG
- In order to lead a healthy life, a person should enjoy physical, mental and social well-being. If a person lacks any one of them, then that person is suffering from _____.
- A child eats food rich in carbohydrates and avoids protein in its diet. Which type of nutritional deficiency will affect that child?
 - Kwashiorkar
 - Nyctalopia
 - Diabetes
 - Down syndrome
- Assertion (A) Expulsion of excess unused glucose in the blood through urine is observed in a diabetic mellitus person.
Reason (R) : insulin is not produced in sufficient quantity by pancreas.
 - Both 'A' and 'R' are true and 'R' explains 'A'.
 - Both 'A' and 'R' are true but 'R' doesn't explain 'A'.
 - Only 'A' is true but 'R' is false.
 - A is false but 'R' is true.

3. STRUCTURE AND FUNCTIONS OF HUMAN BODY

- Unipolar neurons are found in the _____.
 - Brain
 - Spinal Cord
 - Embryonic nervous tissue
 - Adult nervous tissue
- The sensory organs contain _____.
 - Unipolar neuron
 - Bipolar neuron
 - Multipolar neuron
 - Medullated neuron
- The part of brain which controls emotional reactions in our body is _____.
 - Cerebellum
 - Cerebrum
 - Thalamus
 - Hypothalamus
- One of the following is a part of the brain stem. Pick it out.
 - Forebrain and midbrain
 - Midbrain and hindbrain
 - Forebrain and hindbrain
 - Forebrain and spinal cord
- Spinal nerves are _____.
 - sensory nerves
 - motor nerves
 - mixed nerves
 - innervating the brain
- An endocrine gland found in the neck is _____.
 - adrenal gland
 - pituitary gland
 - thyroid gland
 - pancreas
- An endocrine gland which is both exocrine and endocrine is the _____.
 - pancreas
 - pituitary
 - thyroid
 - adrenal
- Normal blood glucose level in 1dl of blood is _____.
 - 80-100 mg/dl
 - 80-120 mg/dl
 - 80-150 mg/dl
 - 70-120 mg/dl

9. The "T" lymphocytes are differentiated to resist infection in the _____
i) parathyroid gland ii) lymph gland iii) thymus gland iv) adrenal gland
10. In Meiosis-I, the pairing of homologous chromosomes take place during _____ stage.
i) leptotene ii) zygotene iii) pachytene iv) diplotene
11. The two systems of the human body which help in the control and co-ordination of metabolic activities are _____.
i) digestive and circulatory ii) respiratory and circulatory
iii) excretory and skeletal iv) nervous and endocrine
12. Neurotransmitters are released at the synapse by _____.
i) Tips of Dendrites ii) Synaptic Knobs iii) Organelles of Cyton iv) Myelin sheath of Axon
13. The endocrine gland related to the immune system is _____.
i) Thyroid ii) Thymus iii) Adrenal iv) Pineal
14. The hormone administered by doctors to a pregnant woman to help in childbirth during the time of natural delivery is _____.
i) Oestrogen ii) Progesterone iii) Insulin iv) Relaxin
15. The important event of meiosis is the crossing over. It occurs during _____.
i) Leptotene ii) Pachytene iii) Diplotene iv) Zygotene
16. Reduction division is the process by which gametes are produced. The cells in which reduction division take place are _____.
i) germinal epithelial cells ii) the sensory epithelial cells
iii) cuboidal epithelial cells iv) columnar epithelial cells
17. In Amoeba, the cell division takes place _____.
i) involving changes in the chromatin reticulum ii) without involving changes in the chromatin reticulum
iii) leading to reduction in the number of chromosomes iv) without dividing the nucleus
18. Pick out the item which has sequential arrangement.
i) zygotene -> Leptotene -> Pachytene -> Diplotene -> Diakinesis
ii) Diakinesis -> zygotene -> Leptotene -> Pachytene -> Diplotene
iii) Leptotene -> zygotene -> Pachytene -> Diplotene -> Diakinesis
19. Polio is a viral disease and the affected child suffers from physical disability of limbs. Which system of the body is mostly affected due to this infection?
i) Nervous system ii) Digestive system iii) Respiratory system iv) Excretory system
20. Blinking when a beam of light is suddenly focussed on the eyes and sudden withdrawal of hand upon touching a hot body are some of the examples of reflex actions. Which part of the central nervous system acts as the centre these actions?
i) Forebrain ii) Spinal cord iii) Hindbrain iv) Synapse
21. The following are the parts of a neuron:
a) Axon b) Terminal branches c) Cyton d) Dendrites
The correct pathway of a nerve impulse through these parts are _____.
i) badc ii) dcab iii) bdac iv) adbc
22. For minor surgeries in the body, doctors administer local anaesthesia to a part of the body so that the pain will not be felt by the patient. At which part, do you think, the nerve impulse is being arrested due to the effect of anaesthesia?
i) at cyton ii) at axon iii) at synapse iv) in the middle of axon
23. Assertion (A) : All spinal nerves are mixed nerves.
Reason (R) : Each spinal nerve has a sensory root and a motor root.
i) Both 'A' and 'R' are true and 'R' explains 'A'.
ii) Both 'A' and 'R' are true but 'R' doesn't explain 'A'.
iii) Only 'A' is true but 'R' is false.
iv) 'A' is false but 'R' is true.

4. REPRODUCTION IN PLANTS

1. The method of reproduction in unicellular organisms like amoeba and bacteria in which they split into two equal halves and produce new ones is called _____.
i) fragmentation ii) binary fission iii) budding iv) spore formation
2. In sexual reproduction of flowering plants, the first event involved in this is _____.
i) fertilization ii) germination iii) regeneration iv) pollination

3. Which of the following statement is true?
 - i) Thin-walled non-mobile spores are called zoospores.
 - ii) A motile asexual spore produced by some algae, bacteria and fungi are Akinetes.
 - iii) Uninucleate, non-motile, asexual spores produced by fungus are called conidia.
 - iv) Thick-walled vegetative cells produced by algae during adverse conditions are called aplanospores.
4. The fertilized ovary is a fruit. The fruit that develops from a single flower with multi carpellary, apocarpous superior ovary is _____.
 - i) Aggregate fruit ii) Composite fruit iii) Simple fruit iv) Multiple fruit
5. If a water soaked seed is pressed, a small drop of water comes out through the _____.
 - i) stomata ii) lenticel iii) micropyle iv) radicle
6. The mango fruit is called a stone fruit because it has _____.
 - i) skinny epicarp ii) stony mesocarp iii) fleshy endocarp iv) hard endocarp
7. Pick out the wrong statement.
 - i) In a dicot seed there is a short longitudinal whitish ridge called the raphae.
 - ii) The minute opening in a dicot seed is known as micropyle.
 - iii) The rudimentary stem portion is known as radicle.
 - iv) The rudimentary root portion is called radicle.
8. Consider the following statements regarding the dispersal of fruits and seeds by wind and select the correct answer.
 - i) Fruits and seeds are dispersed with a sudden jerk by an explosive mechanism.
 - ii) The fruits of tridax carry a persistent calyx modified into pappus.
 - iii) The fruits of xanthium have sharp pointed stiff hooks.
 - iv) The mesocarp of coconut is fibrous.
9. The product of triple fusion which acts as nutritive tissue for the development of an embryo is _____.
 - i) zygote ii) placenta iii) scutellum iv) endosperm
10. The disadvantage of self-pollination is _____.
 - i) There is no wastage of pollen grains. ii) The seeds are less in number.
 - iii) Self-pollination is sure in bisexual flowers iv) Flowers need not depend on agents of pollination.
11. The flower is important to a plant because it helps in _____.
 - i) attracting ii) production of nectar iii) pollination iv) sexual reproduction
12. The essential organs of the flower are _____.
 - i) Calyx and Corolla ii) Androecium and Gynoecium iii) Calyx and Androecium iv) Corolla and Gynoecium
13. Cross pollination is important for producing _____.
 - i) new varieties of plants ii) plants with better growth
 - iii) disease resistant plants iv) all of the above
14. Anemophily occurs in _____.
 - i) Vallisneria ii) Grass iii) Coconut iv) Datura
15. Which of the following structure / arrangement favours entamophily ?
 - i) Pollen grains with wings and feathery stigma ii) Colourful petals and nectar secretion
 - iii) A bunch of flowers with less pollen iv) Pollen grains with mucous covering.
16. Post-fertilization, the ovule changes into a/an _____.
 - i) seed ii) fruit iii) endosperm iv) pericarp.
17. Which of the following is correctly matched?
 - i) False fruit – mango ii) Multiple fruit – apple iii) Aggregate fruit – polyalthia iv) Caryopsis – banana
18. Identify the mismatched pair.
 - i) Legume – Dry dehiscent fruit ii) Cypsela – Dry indehiscent fruit
 - iii) Pome – Fleshy fruit iv) Regma – Resembles legume

5. A REPRESENTATIVE STUDY OF MAMMALS

1. Select important characteristic features of mammals
 - i) four-chambered heart ii) fore-limbs and hind limbs iii) milk-producing glands iv) post anal tail
2. Carnivorous animals use these teeth to tear flesh.
 - i) incisors ii) canines iii) premolars iv) molars
3. The Henle's loop of nephron is mainly responsible for reabsorption of water in the kidney. Which of the following has a long loop of Henle in its nephrons to conserve water?
 - i) polar bear ii) camel iii) frog iv) whale
4. Which blood cells of mammals are concerned with immunity?
 - i) Young Erythrocytes ii) Leucocytes iii) Thrombocytes iv) Matured Erythrocytes

5. You were given two unlabelled slides with blood smears of an amphibian and a mammal. You would differentiate the blood samples by observing the _____.
i) colour ii) nature of RBC's iii) nature of WBC's iv) contents of plasma
6. For the digestion of cellulose, an enzyme called cellulase is required. Some mammals lodge cellulase producing bacteria in their digestive system by offering them food and shelter. These mammals are mostly _____.
i) Herbivores ii) Carnivores iii) Omnivores iv) Sanguivores
7. Forelimbs of mammals have a common basic structure or pattern, but are different in their usage/ function in different animals. They can be called _____.
i) Homologous organs ii) Analogous organs iii) Vestigial organs iv) Rudimentary organs
8. Sensitive whiskers are found in _____.
i) Bat ii) Elephant iii) Deer iv) Cat
9. The tusks of elephants are modified _____.
10. Pick out an animal which has a four-chambered stomach.
i) Elephant ii) Dolphin iii) Deer iv) Kangaroo
11. Normal body temperature of man is _____.
i) 98.4 – 98.6 ° F ii) 96.6 – 96.8 ° F iii) 94.4 – 98.6 ° F iv) 98.4 – 99.6 ° F
12. Mitral valve is found between _____.
i) Right auricle and right ventricle ii) Left auricle and left ventricle
iii) Right ventricle and pulmonary artery iv) Left ventricle and aorta
13. Assertion (A) : Mammalian heart is called myogenic heart.
Reason (R) : Heartbeat is regulated by a specialized muscle bundle (pacemaker) in mammals.
i) Both 'A' and 'R' are true and 'R' explains 'A'.
ii) Both 'A' and 'R' are true but 'R' doesn't explain 'A'.
iii) 'A' is true but 'R' is false.
iv) A is false but 'R' is true.
14. One of the following groups contains a non-mammalian animal. Pick up the group.
i) dolphin, walrus, porcupine, rabbit, bat ii) elephant, pig, horse, donkey, monkey
iii) antelope, deer, cow, buffalo, black buck iv) dog, cat, crocodile, lion, tiger
15. The epidermis of mammals contains _____.
i) hair, bristles, quills ii) hair, nails, claws iii) hair, bristles, horns iv) hair, nails, scales
16. Based on relationship, fill up:
Whale: Flippers:: Bat : _____
17. Fill in the blank.
RBC: Carrier of oxygen; WBC: _____
18. Based on modifications, make the pairs:
incisor: tusks of elephant; _____ : quills of porcupine

6. LIFE PROCESSES

1. In monotropa the special type of root which absorbs nourishment is the _____.
i) Haustoria ii) Mycorrhizal root iii) Clinging root iv) Adventitious root
2. The product obtained in the anaerobic respiration of yeast is _____.
i) Lactic acid ii) Pyruvic acid iii) Ethanol iv) Acetic acid
3. The roots of a coconut tree are seen growing far from the plant. Such a kind of movement of root for want of water is _____.
i) Phototropism ii) Geotropism iii) Chemotropism iv) Hydrotropism
4. The xylem in the plants is responsible for _____.
i) transport of water ii) transport of food iii) transport of amino acids iv) transport of oxygen
5. The autotrophic nutrition requires
i) CO₂ and water ii) chlorophyll iii) sunlight iv) all the above
6. Leaf pores / stomata help in _____.
i) intake of CO₂ during photosynthesis ii) release of O₂ during photosynthesis
iii) release of water vapour during transpiration iv) All of these
7. _____ of green plants are called factories of food production.
i) Mitochondria ii) Chloroplasts iii) Endoplasmic reticulum iv) Nucleus
8. The special root-like structure of plant parasites in cuscuta and viscum are called _____.
i) Rhizoids ii) Haustoria iii) Hyphae iv) Stolons
9. Pick out the odd one : The parts of the alimentary canal are
i) pharynx ii) mouth iii) buccal cavity iv) pancreas

7. CONSERVATION OF ENVIRONMENT

- Which of the following groups contain only bio-degradable items?
 - Grass, flowers and leaves
 - Grass, wood and plastic
 - Fruit peels, cake and plastic
 - Cake, wood and glass
- Which of the following constitutes a food chain?
 - Grass, wheat and mango
 - Grass, goat and human
 - Goat, cow and elephant
 - Grass, fish and goat
- Which of the following are environmental friendly practices?
 - Carrying cloth bags for shopping
 - Switching off light and fans when not in use
 - Using public transport
 - All the above
- What is called as 'black gold'?
 - hydrocarbons
 - coal
 - petroleum
 - ether
- Based on the food chain, pick the odd one out:
plants → grasshopper → frog → tiger → snake
- Example for product of green chemistry is _____.
 - plastic
 - paper
 - bio plastics
 - halogen flame retardants
- _____ is a green house gas which causes climate change and global warming.
 - hydrogen
 - oxygen
 - nitrogen
 - carbondioxide
- The _____ form decomposers in the pond ecosystem.
 - plants
 - bacteria
 - frogs
 - phytoplanktons
- _____ is used in seeding clouds.
 - potassium iodide
 - calcium carbonate
 - sulphurdioxide
 - ammonium phosphate
- An example for fossil fuel is _____.
 - copper
 - iron
 - magnesium
 - coal
- Air pollution is caused by transport exhaust fumes and emission of gases like SO_2 , CO_2 , NO_2 from industries. Similarly, water pollution is caused by _____.
 - sewage
 - crop cultivation
 - rain
 - soil erosion
- If wild animals are killed, what difficulty would we face
 - imbalance in nature
 - decrease in fog rain
 - decrease in population
 - increase in rain
- Water is an essential commodity for survival. What can we do to help increase water resources?
 - deforestation
 - reducing the use of vehicles
 - the burning of the wastage
 - afforestation
- The tiger and the lion are carnivores. Likewise the elephant and the bison are _____.
- Assertion (A) : Coal and petroleum are called fossil fuels.
Reason (R) : Fossil fuels are formed from the remains of dead organisms after millions of years.
 - Both 'A' and 'R' are true and 'R' explains 'A'.
 - Both 'A' and 'R' are true and but 'R' doesn't explain 'A'
 - Only 'A' is true but 'R' is false.
 - 'A' is false but 'R' is true.
- Compressed Natural Gas (CNG) is considered a better fuel than coal/ petroleum, because _____.
- Now-a-days water bottles and lunch boxes are made from agricultural products like fruit pulp. These are called _____.

8. WASTE WATER MANAGEMENT

- An example of water-borne disease is _____.
 - scabies
 - dracunculiasis
 - trachoma
 - typhoid
- The sedimented and floating materials are removed by this treatment process.
 - primary treatment
 - secondary treatment
 - tertiary treatment
 - peripheral treatment
- Which is a non-renewable resource?
 - coal
 - petroleum
 - natural gas
 - all the above
- _____ is the chief component of natural gas.
 - ethane
 - methane
 - propane
 - butane

9. SOLUTIONS

- A true solution is a homogeneous mixture of solute and solvent. Chalk powder in water is a heterogenous mixture. Is it a true solution?
- A solution that contains water as the solvent is called an aqueous solution. If carbon disulphide is a solvent in a given solution, then the solution is called _____. (aqueous solution, non- aqueous solution)

- The solubility of common salt in 100g of water is 36g. If 20g of salt is dissolved in it, how much more is required to attain saturation?
- If two liquids are mutually soluble, they are called _____ liquids. (miscible, immiscible)
- When sunlight passes through the window of a classroom, its path is visible. This is due to _____ of light. (reflection, scattering)
- The particles in various forms are visible only under an ultramicroscope. A solution containing such particles is called _____. (true solution, colloidal solution)
- The number of components in a binary solution are/is _____ (one / two)
- The mixture of gases used by deep-sea divers is _____ (helium-oxygen, oxygen- nitrogen)
- Soil cannot store more nitrogen than it can hold. Hence soil is said to be in a state of _____. (saturation, unsaturation)
- In an endothermic process, solubility increases with _____ in temperature. (increase, decrease)
- Aquatic species are more comfortable in cold water because _____
 - as the temperature decreases, the solubility of dissolved oxygen increases.
 - as the temperature increases, the solubility of dissolved oxygen increases.
 - as the temperature increases, the solubility of dissolved oxygen decreases.

11. CHEMICAL REACTIONS

- $Zn + 2HCl \rightarrow ZnCl_2 + H_2 \uparrow$ The above reaction is an example of _____.
 - Combination reaction
 - Double displacement reaction
 - Displacement reaction
 - Decomposition reaction.
- A reddish brown coloured element 'X' on heating in air, becomes a black coloured compound 'Y'. X and Y are _____ and _____ (Cu, CuO / Pb, PbO).
- A student tests the p H of pure water using a p H paper. It shows green colour. If a p H paper is used after adding lemon juice to water, what colour will he observe? (Green / Red / Yellow)
- Chemical volcano is an example of _____. (combination reaction / decomposition reaction)
- When crystals of lead nitrate on heating strongly produces _____ gas and the colour of the gas is _____.
- When aqueous solution of silver nitrate and sodium chloride are mixed, _____ precipitate is immediately formed (white / yellow / red).
- Aluminium can displace Zinc metal from aqueous solution of Zinc sulphate because _____. (zinc is more reactive than aluminium / aluminium is more reactive than zinc).
- To protect tooth decay, we are advised to brush our teeth regularly. The nature of the tooth paste commonly used is _____ in nature.
- Vinegar is present in acetic acid. Curd contains _____ acid. (Lactic acid / Tartaric acid).
- $pH = -\log_{10}[H^+]$. The p H of a solution containing hydrogen ion concentration of 0.001M solution is _____ (3 / 11 / 14)

12. PERIODIC CLASSIFICATION OF ELEMENTS

- In the modern periodic table, periods and groups are given. Periods and Groups indicate _____.
 - Rows and Columns
 - Columns and Rows
- The third period contains elements. Out of these elements, how many elements are non-metals? (8,5)
- An element which is an essential constituent of all organic compounds belongs to the _____ group. (14th group / 15th group)
- Ore is used for the extraction of metals profitably. Bauxite is used to extract aluminium, it can be termed as _____. (ore / mineral)
- Gold does not occur in the combined form. It does not react with air or water. It is in the _____ state. (native / combined)

13. CARBON AND ITS COMPOUNDS

- Assertion: Chemical bonds in organic compounds are covalent in nature.
Reason: Covalent bond is formed by the sharing of electrons in the bonding atoms.
Does the reason satisfy the given assertion?
- Assertion: Diamond is the hardest crystalline form of carbon.
Reason: Carbon atoms in diamond are tetrahedral in nature (Verify the suitability of reason to the given Assertion mentioned above)

- Assertion: Due to catenation a large number of carbon compounds are formed.
Reason: Carbon compounds show the property of allotropy.
Does the reason hold good for the given Assertion?
- Buckminster fullerene is the allotropic form of _____. (Nitrogen / Carbon / Sulphur)
- Eventhough it is a non-metal, graphite conducts electricity. It is due to the presence of _____.
(free electrons / bonded electrons)
- The formula of methane is CH_4 and its succeeding member ethane is expressed as C_2H_6 . The common difference of succession between them is _____. (CH_2 / C_2H_2)
- IUPAC name of the first member of alkyne is _____. (ethene / ethyne)
- Out of ketonic and aldehydic group, which is the terminal functional group?
- Acetic acid is heated with Na_2CO_3 in a test tube. A colourless and odourless gas (X) is evolved. The gas turns lime water milky. Identify X.
- Assertion: Denaturation of ethyl alcohol makes it unfit for drinking purpose.
Reason: Denaturation of ethyl alcohol is carried out by pyridine.
Check whether the reason is correct for assertion.

15. LAWS OF MOTION AND GRAVITATION

- The acceleration in a body is due to _____.
i) balanced force ii) unbalanced force iii) electro static force
- The physical quantity which is equal to the rate of change of momentum is
i) displacement ii) acceleration iii) force iv) impulse
- The momentum of a massive object at rest is _____.
i) very large ii) very small iii) zero iv) infinity
- The weight of a person is 50 kg. The weight of that person on the surface of the earth will be _____.
i) 50 N ii) 35 N iii) 380 N iv) 490 N
- The freezing of biotechnology products like vaccines require _____ freezing system.
i) Helium ii) Nitrogen iii) Ammonia iv) Chlorine
- Two objects of same mass, namely A and B hit a man with a speed of 20 km/hr and 50 km/hr respectively and comes to rest instantaneously. Which object will exert more force on that man? Justify your answer.
- An object is moving with a velocity of 20 m/s. A force of 10 N is acting in a direction perpendicular to its velocity. What will be the speed of the object after 10 seconds?
- Assertion(A) : Liquefied cryogenic gases are sprayed on electric cables in big cities.
Reason(R): Liquefied cryogenic gases prevent wastage of power.
i) A is incorrect and R is correct. ii) A is correct and R is incorrect
iii) Both A and R are incorrect. iv) A is correct and R supports A.
- The acceleration due to gravity on the surface of the earth will be maximum at _____ and minimum at _____.
- If the radius of the earth is reduced to half of its present value, with no change in the mass, how will the acceleration due to gravity, be affected?
- Selvi placed her purse on the passenger's seat of her car when she drove to work. By the time she reached her office, her purse had fallen on the floor in front of the passenger's seat. Why did this happen? Explain.
- Why does a fielder in the game of cricket pull his hands back when he catches a ball?
- From the following statements, choose that which is not applicable to the mass of an object
i) It is a fundamental quantity. ii) It is measured using physical balance. iii) It is measured using spring balance.
- List out the names of the organisations which are not associated with Chandrayaan-I mission from the following:
i) ISRO ii) BARC iii) NASA iv) ESA v) WHO vi) ONGC

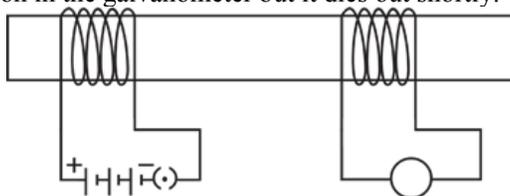
16. ELECTRICITY AND ENERGY

- The potential difference required to pass a current 0.2 A in a wire of resistance 20 ohm is _____.
i) 100 V ii) 4 V iii) 0.01 V iv) 40 V
- Two electric bulbs have resistances in the ratio 1 : 2. If they are joined in series, the energy consumed in these are in the ratio _____. (1 : 2, 2 : 1, 4 : 1, 1 : 1)
- Kilowatt-hour is the unit of _____.
i) potential difference ii) electric power iii) electric energy iv) charge
- _____ surface absorbs more heat than any other surface under identical conditions.
i) White ii) Rough iii) Black iv) Yellow
- The atomic number of natural radioactive element is _____.

- i) greater than 82 ii) less than 82 iii) not defined iv) atleast 92
6. Which one of the following statements does not represents Ohm's law?
i) current / potential difference = constant
ii) potential difference / current = constant
iii) current = resistance x potential difference
7. What is the fuel used in thermal power plants?
8. Which is the ultimate source of energy?
9. What must be the minimum speed of wind to harness wind energy by turbines?
10. What is the main raw material used in the production of biogas?

17. MAGNETIC EFFECT OF ELECTRIC CURRENT AND LIGHT

1. The magnification produced by a mirror is $+1/3$ Then the mirror is a _____.
(concave mirror, convex mirror, plane mirror)
2. The phenomenon of producing an emf in a circuit whenever the magnetic flux linked with a coil changes is _____.
(electromagnetic induction, inducing current, inducing voltage, change in current)
3. An electric current through a metallic conductor produces _____ around it.
(magnetic field, mechanical force, induced current)
4. The field of view is maximum for _____ (plane mirror, concave mirror, convex mirror)
5. An object is placed 25 cm from a convex lens whose focal length is 10 cm. The image distance is _____.
(50 cm, 16.66 cm, 6.66 cm, 10 cm)
6. From the following statement write down that which is applicable to a commutator.
a. A galvanometer uses a commutator for deadbeat
b. A transformer uses a commutator to step up voltage
c. A motor uses a commutator to reverse the current
7. An overhead wire carries current from east to west. Find the direction of the magnetic field 5cm below the wire.?
8. In the arrangement shown in the figure, there are two coils wound on a non-conducting cylindrical rod. Initially the key is not inserted. Then the key is inserted and later removed. Then, which of the following statement is correct?
a. The deflection in the galvanometer remains zero throughout.
b. There is a momentary deflection in the galvanometer but it dies out shortly.



9. Which part of the human eye helps in changing the focal length of the eye lens?
10. A pencil partly immersed in water in a glass tumbler appears to be bent at the interface of air and water. Name the phenomenon of light responsible for it.
11. Sitting in her parlour one night, Chitra sees the reflection of her cat in the living room window. If the image of her cat makes an angle of 40° with the normal,
At what angle does Chitra see him reflected?
12. Why do the lines of the magnetic field not cross each other?
13. What is the magnetic field midway between two parallel conductors carrying same amount of current in the same direction and in the opposite direction
14. How can an AC generator be converted into a DC generator?
15. Compute the position of the object placed in front of a concave mirror of focal length 'f' so that the image formed is of the same size of the object.

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