1.HEREDITY AND EVOLUTION

1. Mendel observed 7 pairs of contrasting characters in Pisum sativum. Which one of the following is not a part of that?
   i) Tall and dwarf ii) Yellow and green seed colour
   iii) Terminal and axial flower iv) Smooth and rough stem
2. Primitive man evolved in __________ i) Africa ii) America iii) Australia iv) India
3. Which of the following is inheritable?
   i) an altered gene in sperm ii) an altered gene in liver cells
   iii) an altered gene in skin cells iv) an altered gene in udder cells
4. The theory of Natural Selection was proposed by __________ .
   i) Charles Darwin ii) Hugo de Vries iii) Gregor Johann Mendel iv) Jean Baptise Lamarck
5. Somatic gene therapy causes __________ .
   i) changes in sperm ii) changes in progeny iii) changes in body cell iv) changes in ovum
6. 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 __________
   i) GG ii) Gg iii) Yy iv) yy
7. Some people can roll their tongue and this is a genetically controlled autosomal dominant character. [Roller = RR / Rr and 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 __________.
   i) RR x RR ii) Rr x Rr iii) RR x rr iv) rr x rr
8. 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.
   i) budding ii) regeneration iii) sexual reproduction iv) asexual reproduction
9. The following are the events in the formation of the first cloned animal — the sheep Dolly.
   a) Removal of haploid nucleus from the ovum.
   b) Implantation of ovum with diploid nucleus into the surrogate mother.
   c) Collection of udder cell from the sheep.
   d) Injection of diploid nucleus of udder cell into the enucleated ovum.
   e) Development of a young clone.
   The correct sequential order of these events is __________ .
   i) abcde ii) cabed iii) cadbe iv) edcba
10. The following are statements about stem cells:
   a) There are unspecialised / undifferentiated cells.
   b) They can be transformed into any type of body cell.
   c) They can multiply rapidly to form a large number of similar types of cells.
   d) They cannot transform into cardiac cells or nerve cells.
   e) They are obtained from reproductive progeny only.
   The correct statements are __________ :
   i) a, b, c only ii) c, d, e only iii) a, c, e only iv) b, c, e only

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11. In persons suffering from insulin-dependent diabetes, _____ the cells of pancreas are degenerated.
   i) Alpha          ii) Beta          iii) Gamma          iv) Delta

12. Identical twins are born as a result of fertilization between_______.
   i) two eggs and two sperms   ii) two eggs and one sperm
   iii) one egg and one sperm   iv) one egg and two sperms

13. Identify the incorrect statement about identical twins.
   i) developed from a single zygote  ii) always of the same sex
   iii) look alike in many aspects    iv) differ in their blood groups

14. The correct statement about Neanderthal man is:
   i) the first human like hominid  ii) started agriculture
   iii) ate meat and walked erectly  iv) buried the dead

15. The inheritance of characteristics through generation is called “heredity”. In Mendel's Pisum sativum plant, the genetic material responsible for heredity is __________.
   i) DNA    ii) RNA    iii) Protein    iv) Cytoplasm

2. IMMUNE SYSTEM
1. Pick out a case of healthy state of an individual.
   i) Mr. X is recovering from an infectious disease.
   ii) Mr. Y takes insulin injection everyday.
   iii) Mrs. Z is very depressed.
   iv) Mr. K does his duty and spends time joyfully.

2. Which one of the following is not socially balanced?
   i) He enjoys a birthday party.
   ii) He behaves rudely over trivial matters.
   iii) He adjusts well to the surrounding situation.
   iv) He attends to his ailing mother at the hospital.

3. _________ is a bacterial disease.
   i) Meningitis    ii) Rabies    iii) Tetanus    iv) Small pox

4. One of the following is transmitted through air. Find it out.
   i) Tuberculosis   ii) Meningitis   iii) Typhoid   iv) Cholera

5. The most serious form of malaria is caused by Plasmodium __________.
   i) ovale     ii) malariae    iii) falciparum    iv) vivax

6. An example of protozoan infecting our intestine is __________.
   i) Plasmodium vivax     ii) Entamoeba histolytica
   iii) Trypanosoma gambiense      iv) Taenia solium

7. One of the means of indirect transmission of a disease is _____.
   i) sneezing    ii) coughing    iii) through placenta    iv) using utensils of patients

8. When antibodies, extracted from other animals are injected into your body, what kind of immunity do you gain?
   i) Artificially active acquired immunity    ii) Artificially passive acquired immunity
   iii) Naturally active acquired immunity       iv) Naturally passive acquired immunity

9. The first vaccine injected into a just born baby is __________.
   i) Oral polio ii) DPT iii) DPT and Oral polio iv) BCG

10. 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 __________.
    Ans: disease
11. A child eats food rich in carbohydrates and avoids protein in its diet. Which type of nutritional deficiency will affect that child?

i) Kwashiorkar  
ii) Nyctalopia  
iii) Diabetes  
iv) Down syndrome  

12. 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.

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.

3. **Structure and Functions of Human Body Organ Systems**

1. Unipolar neurons are found in the ___________.
   i) Brain  
   ii) Spinal Cord  
   iii) Embryonic nervous tissue  
   iv) Adult nervous tissue

2. The sensory organs contain ____________________.
   i) Unipolar neuron  
   ii) Bipolar neuron  
   iii) Multipolar neuron  
   iv) Medullated neuron

3. The part of brain which controls emotional reactions in our body is ____________.
   i) Cerebellum  
   ii) Cerebrum  
   iii) Thalamus  
   iv) Hypothalamus

4. One of the following is a part of the brain stem. Pick it out.
   i) Forebrain and midbrain  
   ii) Midbrain and hindbrain  
   iii) Forebrain and hindbrain  
   iv) Forebrain and spinal cord

5. Spinal nerves are ____________________.
   i) sensory nerves  
   ii) motor nerves  
   iii) mixed nerves  
   iv) innervating the brain

6. An endocrine gland found in the neck is ____________.
   i) adrenal gland  
   ii) pituitary gland  
   iii) thyroid gland  
   iv) pancreas

7. An endocrine gland which is both exocrine and endocrine is the ____________.
   i) pancreas  
   ii) pituitary  
   iii) thyroid  
   iv) adrenal

8. Normal blood glucose level in 1dl of blood is ____________.
   i) 80-100 mg/dl  
   ii) 80-120 mg/dl  
   iii) 80-150 mg/dl  
   iv) 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) Zygote

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) More viable seeds  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
   v) Pome – Fleshy fruit  iv) Regma – Resembles legume

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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_______. ans : Incisors
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 in:
    Whale: Flippers:: Bat :______  Ans : Wings
17. Fill in the blank.
    RBC: Carrier of oxygen; WBC:______  Ans : Engulfing germs and producing antibodies.
18. Based on modifications, make the pairs:

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incisor: tusks of elephant; _____________ : quills of porcupine  Ans: Hair

6. LIFE PROCESSES
1. In monotropa the special type of root which absorbs nourishment is the _______.
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
1. Which of the following groups contain only bio-degradable items?
   i) Grass, flowers and leaves  ii) Grass, wood and plastic
   iii) Fruit peels, cake and plastic  iv) Cake, wood and glass
2. Which of the following constitutes a food chain?
   i) Grass, wheat and mango  ii) Grass, goat and human
   iii) Goat, cow and elephant  iv) Grass, fish and goat
3. Which of the following are environmental friendly practices?
   i) Carrying cloth bags for shopping  ii) Switching off light and fans when not in use
   iii) Using public transport  iv) All the above
4. What is called as ‘black gold’?
   i) hydrocarbons  ii) coal  iii) petroleum  iv) ether
5. Based on the food chain, pick the odd one out:
   plants → grasshopper → frog → tiger → snake  Ans: Tiger
6. Example for product of green chemistry is ____________.
   i) plastic  ii) paper  iii) bio plastics  iv) halogen flame retardants
7. __________ is a green house gas which causes climate change and global warming.
i) hydrogen  ii) oxygen  iii) nitrogen  iv) carbon dioxide

8. The ________ form decomposers in the pond ecosystem.

i) plants  ii) bacteria  iii) frogs  iv) phytoplanktons

9. ________ is used in seeding clouds.

i) potassium iodide  ii) calcium carbonate  iii) sulphurdioxide  iv) ammonium phosphate

10. An example for fossil fuel is ________ .

i) copper  ii) iron  iii) magnesium  iv) coal

11. Air pollution is caused by transport exhaust fumes and emission of gases like SO2, CO2, NO2 from industries. Similarly, water pollution is caused by ________ .

i) sewage  ii) crop cultivation  iii) rain  iv) soil erosion

12. If wild animals are killed, what difficulty would we face?

i) imbalance in nature  ii) decrease in fog rain  iii) decrease in population  iv) increase in rain

13. Water is an essential commodity for survival. What can we do to help increase water resources?

i) deforestation  ii) reducing the use of vehicle  iii) the burning of the wastage  iv) afforestation

14. The tiger and the lion are carnivores. Likewise the elephant and the bison are ________ .

Ans ; Herbivores

15. 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.

i) Both ‘A’ and ‘R’ are true and ‘R’ explains ‘A’.
ii) Both ‘A’ and ‘R’ are true and but ‘R’ doesn’t explain ‘A’
iii) Only ‘A’ is true but ‘R’ is false.
iv) ‘A’ is false but ‘R’ is true.

16. Compressed Natural Gas (CNG) is considered a better fuel than coal/ petroleum, because ____________ .

Ans : It does not pollute the environment.

17. Now-a-days water bottles and lunch boxes are made from agricultural products like fruit pulp. These are called ____________ .

Ans : Green chemistry

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8. WASTE WATER MANAGEMENT

1. An example of water-borne disease is ________ .

i) scabies  ii) dracunculiasis  iii) trachoma  iv) typhoid

2. The sedimented and floating materials are removed by this treatment process.

i) primary treatment  ii) secondary treatment  iii) tertiary treatment  iv) peripheral treatment

3. Which is a non-renewable resource?

i) coal  ii) petroleum  iii) natural gas  iv) all the above

4. ________ is the chief component of natural gas.

i) ethane  ii) methane  iii) propane  iv) butane

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9. SOLUTIONS

1. A true solution is a homogeneous mixture of solute and solvent. Chalk powder in water is a heterogenous mixture. Is it a true solution? ________ .

Ans : No, it is a suspension

2. 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)

3. 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?  
Ans : 16 gram

4. If two liquids are mutually soluble, they are called _______ liquids. (miscible, immiscible)

5. When sunlight passes through the window of a classroom, its path is visible. This is due to _______of light. (reflection, scattering)

6. The particles in various forms are visible only under an ultramicroscope. A solution containing such particles is called _______. (true solution, colloidal solution)

7. The number of components in a binary solution are/is _______ ( one / two)

8. The mixture of gases used by deep-sea divers is _______ (helium-oxygen, oxygen-nitrogen)

9. Soil cannot store more nitrogen than it can hold. Hence soil is said to be in a state of _______. (saturation, unsaturation)

10. In an endothermic process, solubility increases with _______ in temperature. (increase, decrease)

11. Aquatic species are more comfortable in cold water because __________

i). as the temperature decreases, the solubility of dissolved oxygen increases.

ii) as the temperature increases, the solubility of dissolved oxygen increases.

iii) as the temperature increases, the solubility of dissolved oxygen decreases

11. CHEMICAL REACTIONS

1. \[ \text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2 \uparrow \]

The above reaction is an example of _______.

i) Combination reaction

ii) Double displacement reaction

iii) Displacement reaction

iv) Decomposition reaction.

2. 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).

3. A student tests the pH of pure water using a pH paper. It shows green colour. If a pH paper is used after adding lemon juice to water, what colour will he observe? (Green / Red / Yellow)

4. Chemical volcano is an example of __________ . (combination reaction / decomposition reaction)

5. When crystals of lead nitrate on heating strongly produces _______ gas and the colour of the gas is _______.

   Ans : N0\(_2\), Reddish brown

6. When aqueous solution of silver nitrate and sodium chloride are mixed, _______ precipitate is immediately formed (white / yellow / red).

7. Aluminium can displace Zinc metal from aqueous solution of Zinc sulphate because_______

   (zinc is more reactive than aluminium / aluminium is more reactive than zinc).

8. To protect tooth decay, we are advised to brush our teeth regularly. The nature of the tooth paste commonly used is _______ in nature.

   Ans : basic

9. Vinegar is present in acetic acid. Curd contains _____ acid.

   (Lactic acid / Tartaric acid).

10. pH = - log10 [H\(^+\)]. The pH of a solution containing hydrogen ion concentration of 0.001M solution is _____ ( 3 / 11 / 14)
12. PERIODIC CLASSIFICATION OF ELEMENTS
1. In the modern periodic table, periods and groups are given. Periods and Groups indicate __________ i) Rows and Columns ii) Columns and Rows
2. The third period contains elements. Out of these elements, how many elements are non-metals? (8,5)
3. An element which is an essential constituent of all organic compounds belongs to the ________ group. (14th group / 15th group)
4. Ore is used for the extraction of metals profitably. Bauxite is used to extract aluminium, it can be termed as ________. (ore / mineral)
5. 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
1. 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?
   Ans : Yes, the reason satisfies the given assertion.
2. 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)
   Ans : Yes, the reason satisfies the given assersion.
3. 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?
   Ans : No, the stability of carbon compounds is the reason.
4. Buckminster fullerene is the allotropic form of ________. (Nitrogen / Carbon / Sulphur)
5. Eventhough it is a non-metal, graphite conducts electricity. It is due to the presence of __________. (free electrons / bonded electrons)
6. The formula of methane is CH4 and its succeeding member ethane is expressed as C2H6. The common difference of succession between them is ________. (CH2 / C2 H2)
7. IUPAC name of the first member of alkyne is ___________. (ethene / ethyne)
8. Out of ketonic and aldehydic group, which is the terminal functional group?
   Ans : Aldehydic group is a terminal functional group
9. Acetic acid is heated with Na2CO3 in a test tube. A colourless and odourless gas (X) is evolved. The gas turns lime water milky. Identify X. Ans : X - CO2
10. 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.
    Ans : correct
14. MEASURING INSTRUMENTS

1. Screw Gauge is an instrument used to measure the dimensions of very small objects upto (0.1 cm, 0.01 cm, 0.1 mm, 0.01 mm)
2. In a Screw Gauge, if the zero of the head scale lies below the pitch scale axis, the zero error is (positive, negative, nil)
3. The Screw Gauge is used to measure the diameter of a (crowbar, thin wire, cricket ball)
4. One light year is equal to .
   i) $365.25 \times 24 \times 60 \times 60 \times 3 \times 10^8$ m
   ii) $1 \times 24 \times 60 \times 60 \times 3 \times 10^8$ m
   iii) $360 \times 24 \times 60 \times 60 \times 3 \times 10^8$ m
5. One astronomical unit is the mean distance between the centre of the Earth and centre of the i) Moon ii) Sun iii) Mars

15. LAWS OF MOTION AND GRAVITATION

1. The acceleration in a body is due to ___________.
   i) balanced force ii) unbalanced force iii) electro static force
2. The physical quantity which is equal to the rate of change of momentum is
   i) displacement ii) acceleration iii) force iv) impulse
3. The momentum of a massive object at rest is ________.
   i) very large ii) very small iii) zero iv) infinity
4. The mass 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
5. The freezing of biotechnology products like vaccines require ________ freezing system.
   i) Helium ii) Nitrogen iii) Ammonia iv) Chlorine
6. 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.
   Ans : Object with the speed of 50 km/hr will exert more force on the man.
   Reason : because the momentum of an object depends on its mass and velocity. i.e $P = mV$
7. 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?
   Ans : 20 m/s
8. 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.
9. The acceleration due to gravity on the surface of the earth will be maximum at ________ and minimum at ________
   Ans : the poles, the equator
10. 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?
   Ans : The acceleration will 4 times greater
11. 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.
   Ans : It is due to the law of inertia, that the purse falls on the floor.
12. Why does a fielder in the game of cricket pull his hands back when he catches a ball? 
**Ans:** To reduce the impact of force

13. 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.

14. 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

**Ans:** ii) BARC  v) WHO  vi) ONGC

16. **ELECTRICITY AND ENERGY**

1. 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

2. 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)

3. Kilowatt-hour is the unit of __________.

i) potential difference  ii) electric power  iii) electric energy  iv) charge

4. __________ surface absorbs more heat than any other surface under identical conditions.

i) White  ii) Rough  iii) Black  iv) Yellow

5. The atomic number of a natural radioactive element is _________.

i) greater than 82  ii) less than 82  iii) not defined  iv) at least 92

6. Which one of the following statements does not represent Ohm’s law?

i) current / potential difference = constant
ii) potential difference / current = constant
iii) current = resistance x potential difference

**Ans:** current = potential difference / current

7. What is the major fuel used in thermal power plants?

**Ans:** coal

8. Which is the ultimate source of energy?

**Ans:** sun

9. What must be the minimum speed of wind to harness wind energy by turbines?

**Ans:** higher than 15 km/hr

10. What is the main raw material used in the production of biogas?

**Ans:** cow dung

17. **MAGNETIC EFFECT OF ELECTRIC CURRENT AND LIGHT**

1. The magnification produced by a mirror is + . 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.
   Ans: The direction of the magnetic field is from north to south

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?
   Ans: Ciliary muscles

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.
    Ans: Refraction of light

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 400 with the normal, at what angle does Chitra see the reflected image of the cat?
    Ans: 40°
    Reason: Angle of incidence = Angle of reflection

12. Why do the lines of the magnetic field not cross each other?
   Ans: As the lines of the magnetic field are closed curves they do 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?
   Ans: When the current is in the same direction: magnetic field zero
   When the current is in the opposite direction: magnetic field doubles

14. How can an AC generator be converted into a DC generator?
   Ans: by changing slip rings into split ring type commutator.

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.
   Ans: At c