1. HEREDITY AND EVOLUTION

1 Mendel observed 7 pairs of contrasting characters in Pisum sativum. One of the following is not a part of that. Find out.
a) Tall and dwarf, b) Yellow and green seed colour,
c) Terminal and axial Flower, d) **Smooth and rough stem**

2. Primitive man evolved in –
a) **Africa** b) America
c) Australia d) India

3. Which of the following is inheritable
a) **an altered gene in sperm** b) an altered gene in testes
c) an altered gene in zygot d) an altered gene in udder cell

4. Theory of natural selection was proposed by –
a) **Charles Darwin** b) Hugo de Vries
c) Gregor Johann Mendel d) Jean Baptise Lamarck

5. Somatic gene therapy
a) affects sperm b) affects egg,
c) affects progeny d) **affects body cell**

2. IMMUNE SYSTEM

1. Pick out a case of healthy state of an individual.
a) Mr. X is recovering from an infectious disease
b) Mr. Y is taking insulin injection everyday
c) Mrs. Z is very much depressed
d) **Mr. K is attending to his duty and spends time joyfully**

2. Which one of the following is a state of a disease in which a person is not socially balanced.
a) He enjoys a birthday party
b) He behaves rudely even for menial matters
c) He is adjusting to the surrounding situation
d) He is attending to his ailing mother at the hospital

3. Pick out the bacterial disease.
a) Meningitis b) Rabies
c) **Tetanus** d) Small pox

4 . One of the following is transmitted through air. Find out.
a) **Tuberculosis** b) Meningitis
c) Typhoid d) Cholera

5. The most serious form of malaria is caused by Plasmodium _____.
a) P.ovale b) P.malariae
c) **P.falciparum** d) P.vivax

6. An example for protozoan infecting our intestine is _____.
a) Plasmodium vivax b) **Entamoeba histolytica**
c) Trypanosoma gambiense d) Taenia solium

7. One of the means of indirect transmission of a disease is _____.
a) Sneezing, b) Droplet from mouth
c) Placenta, d**) Utensils of patients**

8. When antibodies, extracted from some other animal is injected into your body, what kind of immunity do you gain?
a) Artificial active acquired immunity b) **Artificial passive acquired immunity**
c) Natural active acquired immunity d) Natural passive acquired immunity

9. The first vaccine injected into a just born baby is _____.
   a) Oral polio b) DPT
   c) DPT and Oral polio d) **BCG**
10. Pick out a non-antigen. Entry of _____.
   a) Germ b) Toxins of germs
   c) New forms of protein d) **Mother's Milk**

3.STRUCTURE AND FUNCTIONS OF HUMAN BODY-ORGAN SYSTEMS

1 Unipolar neurons are found in _____.
   a) Brain b) Spinal Chord
   c) **Embryonic nervous tissue** d) Adult nervous tissue
2. The sensory organs contain _____.
   a) Unipolar neuron b) **Bipolar neuron**
   c) Multipolar neuron d) Medullated neuron
3. The part of brain which controls emotional reactions in our body is ____.
   a) Cerebellum b) Cerebrum
   c) Thalamus d) **Hypothalamus**
4. One of the following is the part of the brain stem. Pick out.
   a) Fore brain and mid brain b) **Mid brain and hind brain**
   c) Fore brain and hind brain d) Fore brain and spinal cord
5. Spinal nerves are _____.
   a) Sensory nerves b) Motor nerves
   c) **Mixed nerves** d) Innervating the brain
6. An endocrine gland found in neck is _____.
   a) adrenal gland b) pituitary gland
   c) **thyroid gland** d) pancreas
7. An endocrine gland which is both exocrine and endocrine is _____.
   a) **Pancreas** b) pituitary
   c) Thyroid d) adrenal
8. Normal blood glucose level in 100 ml of blood is _____.
   a) **80-120mg** b) 80-140mg c)120-80mg d) 80-120mm
9. The "T" lymphocytes are differentiated to resist infection in _____.
   a) Parathyroid gland b) lymph gland,
   c) **thymus gland** d) adrenal gland
10. In Meiosis-I, the pairing of homologous chromosomes take place during ____stage.
   a) Leptotene b) **zygotene**
   c) Pachytene d) diplotene

4. REPRODUCTION IN PLANTS

1. This is the one of the methods of reproduction in unicellular organisms like amoeba and bacteria in which they split into two equal halves and produce new ones is called.
   a) fragmentation *b) **binary fission***
   c) budding *d) spore formation*
2. In sexual reproduction of flowering plants, the first event involved in this is.
   (a) fertilization *(b) germination*
   (c) regeneration *(d) **pollination***

3. Which of the following statement is true.
   - *Thin walled non mobile spores are called zoospores,*
   - *A motile asexual spore produced by some algae bacteria and fungi are Akinetes,*
   - ***Uninucleate non-motile asexual spores are produced by the fungus are called conidia***
   - *Thick walled vegetative cells produced by the algae during adverse conditions are called aplanospores*

4 The fertilized ovary is a fruit. The fruit develops from a single flower with multi carpellary, apocarpous superior ovary is
   a) ***Aggregate fruit*** *b) Composite fruit*
   c) Simple fruit *d) Multiple fruit*

5. If a water soaked seed is pressed, a small drop of water comes out through.
   a) stomata *b) lenticels*
   c) ***micropyle*** *d) radicle*

6. The mango fruit is called as stone fruit. because it has.
   a) skinny epicarp *b) stony mesocarp*
   c) fleshy endocarp *d)* ***hard endocarp***

7. Pick out the wrong statement.
   - *In a dicot seed there is a short longitudinal whitish ridge is called the raphae.*
   - *There is a minute opening in dicot seed is known as micropyle.*
   - ***The rudimentary stem portion known as radicle.***
   - *The rudimentary root portion is called radicle)*

9. Consider the following statement regarding the dispersal of fruit by wind and select the correct answer.
   - *Fruits and seeds dispersed witha sudden jerk by an explosivemechanism.*
   - ***Fruits of tridax are carry a persistent calyx modified into pappus****.*
   - *The fruits of xanthium have sharp pointed stiff hooks.*
   - *The mesocarp of coconut is fibres)*

10. The product of triple fusion which acts as nutritive tissue for the development of embryo is
   a) *zygote* *b) placenta*
   c) scutellum, *d)* ***endosperm***

11. The disadvantage of self pollination is
   - *There is no wasteage of pollen grains*
   - ***The seeds are less in number***
   - *Self pollination is sure in bisexual flowers*
   - *Flowers need not depend on agents of pollination*

5. A REPRESENTATIVE STUDY OF MAMMALS

1. Sensitive whiskers are found in_____.
   a) Bat b) Elephant c) Deer d) **Cat.**
2. The tusks of elephants are modified _____.
3. Pick out an animal which has four chambered stomach _____.
   a) Elephant b) Dolphin c) **Deer** d) Kangaroo.
4. Normal body temperature of man is _____.
   a) **98.4 – 98.6oF** b) 96.6 – 96.8oF
   c) 94.4 –98.6oF d) 98.4 – 99.6oF.
5. Mitral valve is found between_____.
   a) Right auricle and right ventricle b) **Leftauricle and left ventricle**
   c) Right ventricle and pulmonary artery d) Left ventricle and aorta.

6. LIFE PROCESSES

1. In monotropa the special type of root which absorbs nourishment is
   a) Haustoria b) **Mycorrhizal root**
   c) Clinging root d) Adventious root

2. The product obtained in the Anaerobic respiration of yeast is
   a) Lactic acid b) Pyruvic acid
   c) **Ethanol** d) Acetic acid
3. The roots of coconut tree are seen away from the plant. Such kind of movement of root for want of water is
   a) Phototropism b) Geotropism
   c) Chemo-tropism d) **Hydrotropism**
4. The xylem in the plants are responsible for
   a) **transport of water** b) transport of food
   c) transport of amino acid d) transport of oxygen
5 . The autrotropic nutrition requires
   a) CO2 and water b) chlorophyll
   c) sunlight d) **all the above**

7. CONSERVATION OF ENVIRONMENT

1. Which of the following groups contain only bio degradable items?
   a) **Grass,flowers and leather** b) Grass, Wood and plastic
   c) Fruit peels, cake and plastic d) **Cake, wood and grass**
2. Which of the following constitute a food chain?
   (a) Grass, wheat and mango (b) **Grass, goat and human**
   (c) Goat, cow and elephant (d) Grass, fish and goat
3. Which of the following are environmental friendly practices?
   a) carrying cloth bags to carry the purchase items during shopping,
   b) switching off light and fans when not in use
   c) use the public transport
   d) **all the above**
4. what is called as 'black gold'?
   a) hydrocarbons b) coal c) **petroleum** d) ether
5. odd one out. (Plants, grasshopper, frog**, tiger**, snake)
6. Example for product of green chemistry is
   (plastic, paper, **bio plastics**, halogen flame retardants)
7. _____ green house gas which causes climate change and global warming.
   a) hydrogen b) oxygen c) nitrogen d) **carbon dioxide**
8. The _____ forms decomposer in the pond ecosystem
   a) plants b) **bacteria** c) frog d) phyto planktons)
9. _____ chemical is used in seeding clouds
   a) **potassium iodide** b) calcium carbonate
   c) sulphurdioxide d) ammonium phosphate)
10. Example for fossil fuel is
    a) copper b) iron c) magnesium d) **coal**

8. WASTE WATER MANAGEMENT

1 Example for water-borne disease is
a) Scabies b) dracunculiasis c) trachoma d) **typhoid**

2. The settled and floating materials are removed by this treatment method.
a) **primary treatment** b) secondary treatment
c) tertiary treatment d) peripheral treatment

3. Which is a non-renewable resource?
(a) coal b) petroleum c) natural gas d) **all the above**

4. ---------- is the chief component of natural gas.
(a) ethane b) **methane** c) propane d) butane

9. SOLUTIONS

1 A true solution is a homogenous mixture of solute and solvent. Chalk powder in water is a heterogenous mixture. Is it a true solution? **NO, it is a colloidal solution**

2. Solution that contains water as the solvent is called aqueous solution. If carbon disulphide is a solvent in a given solution, then the solution is called **Non – aqueous solution**

3. Solubility of common salt in 100g water is 36g. If 20g of salt is dissolved in it how much more is required to attain saturation. **(16g)**

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

5. When sunlight passes through window of the classrooms its path is visible. This is due to _____of light. (reflection, **scattering**)

6. The particles in various forms are visible only under ultramicroscope. A solution containing such particles is called _____. (True solution/ **colloidal solution**)

7. The mixture of gases used by deep sea divers is _____ (**Helium-oxygen**, oxygen-nitrogen)

8. Earth soil cannot store more nitrogen than it can hold. Hence earth soil is referred to be in a state of _____. (**saturation**, unsaturation)

9. In an endothermic process, solubility increases with _____ in temperature. (**increase**, decrease)

10. ATOMS AND MOLECULES (2 marks)

1. From the given examples, form the pair of isotopes and the pair of isobars
18Ar40, 17Cl35, 20Ca40, 17Cl37

2 . Molecular mass of nitrogen is 28. Its atomic mass is 14. Find the atomicity of nitrogen.

3. Gram molecular mass of oxygen is 32g. Density of oxygen is 1.429g/cc. Find the gram molecular volume of oxygen.

4. ‘Cl’ represents chlorine atom, ‘Cl2’ represents chlorine molecule.
List out any two differences between atoms and molecules.

5. Calculate the gram molecular mass of water from the values of gram atomic mass of hydrogen and of oxygen.
Gram atomic mass of hydrogen = 1g
Gram atomic mass of oxygen = 16g

6. One mole of any substance contains 6.023 x 1023 particles.
If 3.0115 x 1023 particles are present in CO2. Find the number of moles.

11. CHEMICAL REACTIONS

1. $Zn + 2HCl \rightarrow ZnCl2 + H2 \uparrow$
   The above reaction is an example of
   a) Combinationreaction b) Double displacement reaction
   c) **Displacement reaction** d) Decomposition reaction.
2. A reddish brown coloured element 'X' on heating in air becomes black coloured compound 'Y'. X and Y are_____ and _____(**Cu, CuO** /Pb, PbO).
3. A student tested the pH of pure water using a pH paper. It showed green colour. If a pH paper is used after adding lemon juice into water, what color 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 a ____ gas and the colour of the gas is _____.(**NO_2, Reddish brown**)
6. When aqueous solution of silver nitrate and sodium chloride are mixed _____ precipitate is immediately formed **(white** / yellow / red).
7. Zinc can displace aluminium metal from aquous solution of aluminium sulphate (**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.(**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————
   a) **Rows and Columns** b) Columns and rows
2. Third period contains 8 elements, out of these elements how many elements are non-metals?.(**5)**
3. An element which is an essential constituent of all organic compounds belongs to _____ 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 _____. (**native state** / combined state)

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? **Yes**
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.
   No, Three diamentional Structure.
3. Assertion: Due to catenation a large number of carbon compounds are formed.
   Reason: Carbon compounds show the property of allotropy.
   Is the reason holding good for the given Assertion.**No**
4. Buckminster Fullerene is the allotropic form of (Nitrogen / **Carbon** / Sulphur)

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5. Eventhough it is a non metal, graphite conducts electricity. It is due to the presence of ……(**free electrons** / bonded electrons)
6. Formula of methane is CH4 and its succeeding member ethane is expressed as C2H6. The common difference of succession between them is (**CH_2** / C_2H_2)
7. IUPAC name of first member of alkyne is …… (ethene / **ethyne**)
8. Out of ketonic and aldehydic group which is the terminal functional group? **Aldehyd group –CHO**
9. Acetic acid is heated with a solid 'X' kept in a test tube. A colourless and odourless gas (Y) is evolved. The gas turns lime water milky when passed through it. Identify X and Y.**X – Na_2CO_3, Y – CO_2**
10. Assertion: Denaturation of ethyl alcohol makes it unfit for drinking purposes. Reason: Denaturation of ethyl alcohol is carried out by methyl alcohol. Check whether the reason is correct for assertion.
Yes Methyl alcohol is poisonous in nature when it is mixed with ethyl alcohol.

14. MEASURING INSTRUMENTS (No questions will be asked)

1. Screw gauge is an instrument to measure the dimensions of very small objects up to
a) 0.1 cm. b) 0.01 cm., c) 0.1 mm. d) 0.01 mm
2. In a screw gauge zero of the head scale lies below pitch scale axis, the zero error is a) positive b) negative c) nil
3. Screw gauge is used to measure the diameter of
a) crow bar b) thin wire c) cricket ball
4. One light year is equal to
a) 365.25 x 24 x 60 x 60 x 3 x 108 m b) 1 x 24 x 60 x 60 x 3 x 08 m
c) 360 x 24 x 60 x 60 x 3 x 108 m
5. One astronomical unit is the distance between the centre of the earth and
(a) centre of the Moon b) centre of the Sun c) centre of the Mars

15. LAWS OF MOTION AND GRAVITATION

1. The acceleration in a body is due to _____.
a) balanced force b**) un-balanced force**
2. The physical quantity which is equal to rate of change of momentum is
(a) displacement b) acceleration c) **force** d) impulse
3. The momentum of a massive object at rest is _____.
a) very large b) very small c) **zero** d) infinity
4. The weight of 50 kg person at thesurface of earth is _____
a) 50N b) 35N c) 380N d) **490N.**
5. The freezing of biotechnology products like Vaccine requires_____
a) Helium b) **Nitrogen** c) Ammonia d) Chlorine

16 ELECTRICITY AND ENERGY

1. The potential difference required to pass a current 0.2 A in a wire of resistance 20 ohm is _____.
(a) 100V b) **4 V** c) 0.01 V d) 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 _____.
(a) **1 : 2** b) 2 : 1 c) 4 : 1 d) 1 : 1
3. Kilowatt-hour is the unit of _____.
(a) potential difference b) electric power c) **electric energy** d) charge

4. _____ surface absorbs more heat than any other surface under identical conditions.
   a) White b) rough c) **black** d) yellow
5. The atomic number of natural radioactive element is _____.
   (a) **greater than 82** b) less than 82 c) not defined d) at least 92

17. MAGNETIC EFFECT OF ELECTRIC CURRENT AND LIGHT

1. The magnification produced by a mirror is 1/3, then the type of mirror is
   (a) concave b) **convex** c) plane
2. An electric current through a metallic conductor produces _____ around it.
   (a) heat b) light c) **magnetic field** d) mechanical force
3. The field of view is maximum for
   (a) plane mirror b) concave mirror c) **convex mirror**
4. An object is placed 25 cm from a convex lens whose focal length is 10 cm. The image distance is _____ .
   (a) 50 cm b) **16.66 cm** c) 6.66 cm d)10 cm