VIDYASGAR SCHOOL INDORE

SUMMER ASSIGNMENT 2026-27

CLASS- X SUBJECT- SCIENCE (086)

PROJECT- SCIENCE (ANY ONE) Exhibit creativity and design models using low cost or no-cost eco-friendly material to study structure and functions of -

neuron/ Reflex arc/ Human brain/ Response of the plant to the direction of light(Phototropism)/ Endocrine glands in human beings (a) male, (b) female/ Open and (b) closed stomatal pore/ Nutrition in Amoeba/ Haemodialysis/ transport of water and minerals in plants / Food chain in nature (a) in forest, (b) in grassland and (c) in a pond./ human eye/ domestic electric circuit/ dispersion of white light through lass prism/ rainbow formation/ working model of closed and open circuit/ Important products from the chlor-alkali process/ Steps involved in the extraction of metals from ores/ Electrolytic refining of copper/ Investigating the conditions under which iron rusts. In tube A, both air and water are present. In tube B, there is no air dissolved in the water. In tube C, the air is dry/ The structure of diamond and the structure of graphite.

ASSIGNEMENT-

SECTION-A (BIOLOGY)

Question 1 to 25 are multiple choice questions. Only one of the choices is correct. Select the correct answer to these questions.

Q.1 The chlorophyll in photosynthesis is used for:

(a) Absorbing light(b) Breaking down water molecule

(c) No function (d) Reduction of CO_2

Q.2. Proteins after digestion are converted into:

(a). Carbohydrates (b) Small globules (c) Amino acids (d) starch

Q.3. Carbohydrates in the plants are stored in the form of

(a) Glycogen (b) Starch (c) Glucose (d) Maltose

Q.4. Main site of photosynthesis

(a) Leaf (b) Stem (c) Chloroplast (d) Guard cells

Q.5. Opening and closing of pores is a function performed by-

(a) Stomata (b) Chlorophyll (c) Chloroplast (d) Guard cells

Q.6. Single circulation, i.e., blood flows through the heart only once during one cycle of passage through the body, is exhibited by which of the following:
(a) hyla, rana, draco (b) whale, dolphin, turtle
(c) labeo, chameleon, salamander (d) hippocampus, exocoetus, anabas

Q.7. Which element is used in the synthesis of proteins?

(a) Hydrogen (b) Oxygen (c) Nitrogen (d) Carbon dioxide

Q.8. Temporary finger like extensions on amoeba are called-

(a) Cell membrane (b) Cell wall (c) Pseudopodia (d) Cilia

Q.9. Bile juice is secreted by-

(a) Stomach (b) Pancreas (c) Small intestine (d) Liver

Q.10. Which of these juices is secreted by pancreas?

(a) Trypsin (b) Pepsin (c) Bile juice (d) Both I and II

Q.11. Lipase acts on-

(a) Amino acids(b) Fats (c) Carbohydrates (d) All of these

Q.12. Respiratory pigment in human body is-

(a). Chlorophyll (b) Water (c) Blood (d) haemoglobin

Q.13. Blood consist of what fluid medium?

(a) Lymph (b) Platelets (c) Plasma (d) All of these

Q.14. One cell-thick vessels are called

(a) Arteries (b) Veins (c) Capillaries (d) Pulmonary artery

Q.15 In which mode of nutrition an organism derives its food from the body of another living organism without killing it?
(a) Saprotrophic nutrition (b) Parasitic nutrition
(c) Holozoic nutrition (d) Autotrophic nutrition

Q.16 Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva?
(a) Starch breaking down into sugars. (b) Proteins breaking down into amino acids.
(c) Absorption of vitamins. (d) Fats breaking down into fatty acids and glycerol.

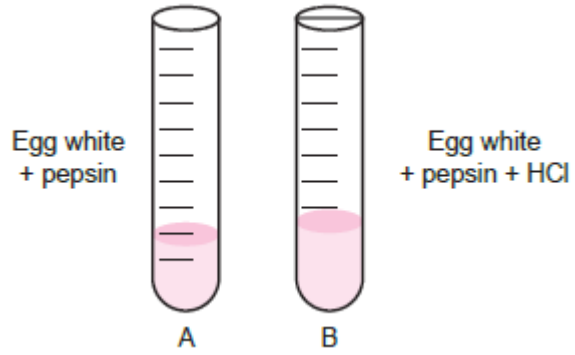
Q.17 What are the products obtained by anaerobic respiration in plants?
(a) Lactic acid + Energy (b) Carbon dioxide + Water + Energy
(c) Ethanol + Carbon dioxide + Energy (d) Pyruvate

Q.18 The respiratory pigment in human beings is:
(a) carotene (b) chlorophyll (c) haemoglobin (d) mitochondria

Q.19 Identify the correct path of urine in the human body.
(a) Kidney → urinary bladder → urethra → ureter
(b) Urinary bladder → ureter → kidney → urethra
(c) Kidney → ureter → urethra → urinary bladder
(d) Kidney → ureter → urinary bladder → urethra

Q.20

In which test tube, the digestion of protein will occur?
(a) Test tubes A as pepsin will breakdown protein into simple molecules.
(b) Test tube B as HCl will breakdown protein into simple molecules.
(c) Test tube A as pepsin will breakdown into simple molecules.



(d) Test tube B as HCl will activate pepsin for breakdown of protein into simple molecules.

Following questions(Q. NO. 21-25) consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Q.21 Assertion (A) : Plants lack excretory organs.
Reason (R) : Plants usually absorb essential nutrients.

Q.22 Assertion (A) : Bile is essential for digestion of lipids.
Reason (R) : Bile juice contains enzymes.

Q.23 Assertion (A) : Human heart is four-chambered.
Reason (R) : Vena cava is the only artery that supplies deoxygenated blood to the heart.

Q.24 Assertion (A): The purpose of making urine is to filter out undigested food from intestine
Reason (R): Kidneys filter the waste and produce urine,

Q.25 Assertion : Phloem helps in translocation of food from the leaves.
Reason: Phloem provides mechanical support to plant.

SECTION-B (CHEMISTRY)

Q.1 Which of the following is not a physical change?

(a) Boiling of water to give water vapour (b) Melting of ice to give water

(c) Dissolution of salt in water (d) Combustion of Liquefied Petroleum Gas (LPG)

Q.2 Which of the following statements about the given reaction are correct?

$$3Fe\ (s) + 4H_2O\ (g) \rightarrow Fe_3O_4\ (s) + 4\ H_2\ (g)$$

(i) Iron metal is getting oxidised (ii) Water is getting reduced

(iii) Water is acting as reducing agent (iv) Water is acting as oxidising agent

(a) (i), (zi) and (iii) (b) (in) and (iv) (c) (i), (ii) and (iv) (d) (ii) and (iv)

Q.3 Fatty foods become rancid due to the process of-

(a) oxidation (b) corrosion (c) reduction (d) hydrogenation

Q.4 Dilute hydrochloric acid is added to granulated zinc taken in a test tube. The following observations are recorded. Point out the correct observation.-

(a) The surface of metal becomes shining

(b) The reaction mixture turns milky

(c) Odour of a pungent smelling gas is recorded

(d) A colourless and odourless gas is evolved

Q.5 An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are-

(a) X = Fe, Y = Fe_2O_3 (b) X = Ag, Y = Ag_2S

(c) X = Cu, Y = CuO (d) X = Al, Y = Al_2O_3

Q.6 Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous $CuS0_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement(s) is(are) correct?

In beakers A and B, exothermic process has occurred.

In beakers A and B, endothermic process has occurred.

In beaker C exothermic process has occurred.

In beaker C endothermic process has occurred.

(i) only (b) (ii) only (c) (i) and (iv) (d) (ii) and (iii)

Q.7 A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

(a)$KMn0_4$ is an oxidising agent, it oxidises $FeS0_4$

(b)$FeS0_4$ acts as an oxidising agent and oxidises $KMnO_4$

(c)The colour disappears due to dilution; no reaction is involved

(d) $KMn0_4$ is an unstable compound and decomposes in presence of $FeS0_4$ to a colourless compound.

Q.8 Solid calcium oxide reacts vigorously with water to form calcium hydroxide accompanied by liberation of heat. This process is called slaking of lime. Calcium hydroxide dissolves in water to form its solution called lime water. Which among the following is (are) true about slaking of lime and the solution formed?

(i) It is an endothermic reaction (ii) It is an exothermic reaction

(iii) The pH of the resulting solution will be more than seven

(iv)The pH of the resulting solution will be less than seven

(a) (i) and (ii) (b) (ii) and (iii) (c) (i) and (iv) (d) (iii) and (iv)

Q.9 Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?

(i) Displacement reaction (ii) Precipitation reaction

(iii) Combination reaction (iv) Double displacement reaction

(a) I only (b) (ii) only (c) (iv) only (d) (ii) and (iv)

Q.10 Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is-

(a) 1:1 (b) 2:1 (c) 4:1 (d) 1:2

Q.11 Which one of the following processes involve chemical reactions?

(a) Storing of oxygen gas under pressure in a gas cylinder

(b) Liquefaction of air (c)Keeping petrol in a china dish in the open

(d)Heating copper wire in presence of air at high temperature

Q.12 In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate?

Lead sulphate (insoluble) (b) Lead acetate (c) Ammonium nitrate (d) Potassium sulphate

Q.13 Which among the following is(are) double displacement reaction(s)?

(i) $Pb + CuCl_2 \rightarrow PbCl_2 + cu$ (ii) $Na_2S0_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

(iii) $C + 0_2 \rightarrow C02$ (iv) $CH_4 + 20_2 \rightarrow C02 + 2H_20$

(i) and (iv) (b) (ii) only (c) (i) and (ii) (d) (iii) and (iv)

Q.14 When crystals of lead nitrate are heated strongly in a dry test tube-

(a) crystals immediately melt (b) a brown residue is left

(c) white fumes appear in the tube (d) a yellow residue is left

Q.15 Which of the following are exothermic processes?

(i) Reaction of water with quick lime (ii) Dilution of an acid

(iii) Evaporation of water (iv) Sublimation of camphor (crystals)

(a) (i) and (ii) (b) (ii) and (iii) (c) (i) and (iv) (d) (iii) and (iv)

Following questions (Q. NO. 15 -20) consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:
(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Q.16 Assertion (A): A chemical reaction becomes faster at higher temperatures.

Reason (R): At higher temperatures, molecular motion becomes more rapid.

Q.17 Assertion (A): Sodium metal is stored under Kerosene.

Reason (R): Metallic sodium melts when exposed to air.

Q.18 Assertion (A): A reducing agent is a substance which can either accept electrons.

Reason (R): A substance which helps in oxidation is known as a reducing agent.

Q.19 Assertion (A): Pungent-smelling gas is produced when sulphur burns in the air.

Reason (R): Sulphur trioxide is formed on the reaction of sulphur with oxygen.

Q.20 Assertion (A): Calcium carbonate when heated gives calcium oxide and water.

Reason (R): On heating calcium carbonate, decomposition reaction takes place.

----------X----------

SECTION-C (PHYSICS)

Q1.Focal length of plane mirror is-

(a). At infinity (b). Zero (c). Negative (d). None of these

Q2. Image formed by plane mirror is-

(a). Real and erect (b). Real and inverted

(c). Virtual and erect (d). Virtual and inverted

Q.3. A concave mirror gives real, inverted and of point size image if the object is placed-

(a). At F (b). At infinity (c). At C (d). Beyond C

Q.4. A concave mirror of radius 30 cm is placed in water. It's focal length in air and water differ by-

(a) 15 (b) 20 (c) 30 (d) 0

Q.5. A concave mirror gives virtual, refract and enlarged image of the object but image of smaller size than the size of the object is-

(a). At infinity (b). Between F and C (c). Between P and F (d). At E

Q.6. A concave mirror of focal length 20 cm forms an image having twice the size of object. For the virtual position of object, the position of object will be at-

(a) 25 cm (b) 40 cm (c) 10 cm (d) At infinity

Q.7. The image formed by concave mirror is real, inverted and of the same size as that of the object. The position of object should be-

(a) at the focus (b) at the centre of curvature

(c) between focus and centre of curvature (d) beyond centre of curvature

Q.8. The nature of the image formed by concave mirror when the object is placed between the focus(F) and centre of curvature (C) of the mirror observed by us is-

(a) real, inverted and diminished (b) virtual, erect and smaller in size

(c) real, inverted and enlarged (d) virtual, upright and enlarged

Q.9. The nature of image formed by a convex mirror when the object distance from the mirror is less than the distance between pole and focal point (F) of the mirror would be-

(a) real, inverted and diminished in size (b) real, inverted and enlarged in size

(c) virtual, upright and diminished in size (d) virtual, upright and enlarged in size

Q.10. If a man's face is 25 cm in front of concave shaving mirror producing erect image 1.5 times the size of face, focal length of the mirror would be-

(a) 75 cm (b) 25 cm (c) 15 cm (d) 60

Q.11. The radius of curvature of a mirror is 20cm the focal length is-

(a). 20cm (b). 10cm (c). 40cm (d). 5cm

Q.12.In which of the following is a concave mirror used ?

(a) A solar cooker

(b) A rear view mirror in the vehicles.

(c) A safety mirror in shopping malls

(d) In viewing full size image of distant tall buildings.

Q.13. Which mirror always forms virtual, erect and diminished images?

(a) Concave mirror (b) Convex mirror (c) Plane mirror (d) Parabolic mirror

Q.14. An object is placed at a distance of 0.25 m in front of a plane mirror. The distance between the object and image will be-

(a) 0.25 m (b) 1.0 m (c) 0.5 m (d) 0.125 m

Q.15. The angle of incidence for a ray of light having zero reflection angle is-

(a) 0 (b) 30° (c) 45° (d) 90°

Following questions(Question Nos.16 -20) consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

Q.16.Assertion(A) : The centre of curvature is not a part of the mirror. It lies outside its reflecting surface.

Reason (R) : The reflecting surface of a spherical mirror forms a part of a sphere. This sphere has a centre.

Q.17.Assertion (A) : A ray passing through the centre of curvature of a concave mirror after reflection, is reflected back along the same path.

Reason (R) : The incident rays fall on the mirror along the normal to the reflecting surface.

Q.18 Assertion(A): The mirrors used in search lights are concave spherical.

Reason (R) : In concave spherical mirror the image formed is always virtual.

Q.19 .Assertion(A) : Mirror formula can be applied to a plane mirror.

Reason (R) : A plane mirror is a spherical mirror of infinite focal length.

Q.20 .Assertion(A) : When the object moves with a velocity 2 m/s, its image in the plane mirror moves with a velocity of 4 m/s.

Reason (R) : The image formed by a plane mirror is as far behind the mirror as the object is in front of it.

----------X----------