

Self Assessment Paper

SECTION A

1. To measure potential difference across two points.

[CBSE Marking Scheme, 2012] 1

2. A black surface absorbs more heat as compared to white or a reflecting surface.

[CBSE Marking Scheme, 2016] 1

OR

- (a) They are non-renewable and their formation takes millions of years.
(b) They can get exhaust in the future

(Any one) 1

[CBSE Marking Scheme, 2019]

3. (a) Q, as it replaces both P and R from their compounds
(b) R, as it has been replaced by both P and Q
(c) (i) Displacement reaction
(d) Displacement reaction is a type of reaction in which more active element displaces a less reactive element from its compound.

1+1+1+1

4. (a) The phenomenon of splitting of white light into its constituent colours when it passes through prism is known as dispersion of light.
(b) (i) Rainbow is caused by dispersion of sunlight by tiny water droplets present in the atmosphere.
(c) (i)

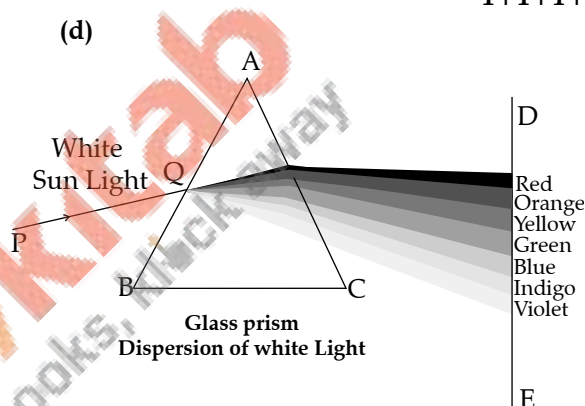
Explanation : Based on above phenomenon of dispersion, we can conclude that

- White light consists of seven colours.
- Violet light suffers maximum deviation and red light suffers minimum deviation.

- All the colours of the white light move with the same speed in air or vacuum but with different wavelengths and frequencies.

1+1+1+1

(d)



5. **Correct option :** (c)
Explanation : In beakers A and B, heat is given out, so temperature became high, hence it is an exothermic reaction while in beaker C, heat is absorbed from water, so temperature falls, hence it is an endothermic process. 1

OR

- Correct option :** (b)
Explanation : Ethane has 7 covalent bonds. One bond is between two carbon atoms and rest of the six are between hydrogen atoms. 1

6. **Correct option :** (c)
Explanation : Formula of oxide is E_2O_3 . 1
7. **Correct option :** (c)
Explanation : Kidneys are the paired organ where urine formation takes place. Small muscular tube, called as ureter, extend from kidneys and carry blood to urinary bladder. The urethra is a small tube that extends from the urinary bladder to an external opening. 1
8. **Correct option :** (d)
Explanation : Lipase is released from pancreas and is involved in digestion of emulsified fats into fatty acid and diglyceride. 1

9. **Correct option :** (b)

Explanation : Medulla oblongata deals with the involuntary functions of breathing, heart rate and blood pressure. **1**

10. **Correct option :** (c)

Explanation : Traits in other options are always inheritable traits. **1**

11. **Correct option :** (d)

Explanation : Development of female secondary sexual characters marks onset of puberty and initiation of menstrual cycle reflects onset of reproductive phase. **1**

12. **Correct option :** (d)

Explanation : In humans, the life processes are controlled and regulated by nervous and endocrine system. Both the systems work together to maintain the homeostasis. **1**

13. **Correct option :** (d)

Explanation : Valves are absent in arteries, whereas it is present in veins, which prevent back flow of blood. **1**

OR

Correct option : (b)

Explanation : Herbivores have larger small intestine as compared to carnivores to allow cellulose to be digested. Complete digestion of food takes in small intestine in humans. **1**

14. **Correct option :** (b)

Explanation : Vegetative reproduction happens through the use of vegetative parts of the plants, such as leaves, stems, and roots to produce new plants or through growth from specialized vegetative plant parts. **1**

SECTION B

15. (i) **At Cathode :** Hydrogen gas (H_2)

At Anode : Oxygen gas (O_2) **1**

(ii) Since $2H_2O \xrightarrow{\text{Electric current}} 2H_2 + O_2$

2 molecules of H_2 combine with 1 mol of O_2 to form H_2O , so the volume of H_2 , liberated is double than that of O_2 . **1**

(iii) When a burning splinter is brought near the mouth of the liberated gas, the burning splinter extinguishes near the H_2 gas while the burning splinter keeps burning more near the O_2 gas. **1**

[CBSE Marking Scheme, 2012]

16. Water of crystallization is the fixed number of water molecules present in one formula unit of salt. **1**

Five molecules of water. $\frac{1}{2}$

Formula : $CuSO_4 \cdot 5H_2O$ $\frac{1}{2}$

When heated, its colour changes from blue to white. [CBSE Marking Scheme, 2012] **1**

OR

(i) The most ductile metal is platinum and the most malleable metal is gold. **1**

(ii) Silver is the best conductor of heat and lead is the poorest conductor of heat. **1**

(iii) Metal with highest melting point : Tungsten, iron.

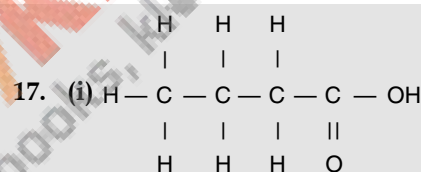
Metal with lowest melting point : Gallium, Cesium. **1**

Commonly Made Error

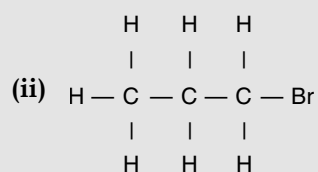
- Students often get confused with physical properties of metals with their examples.

Answering Tip

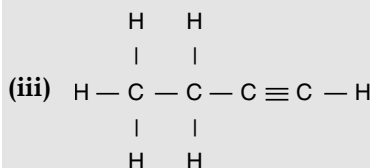
- Learn and understand all the physical properties of metals with proper examples.



Carboxylic group ($-COOH$)



Halogen atom ($-Br$)



Triple bond ($-C \equiv C-$) **1 + 1 + 1**

[CBSE Marking Scheme, 2015]

Commonly Made Error

- Students get confused and do mistakes while writing the structure, name and also with the functional group involved.

Answering Tip

- Please understand the basic concept of alkane, alkene and alkynes with their general formula. Then make a list of the compounds involved in the above and also learn different functional groups. Drawing structures and practicing them is mandatory.

18. Functions of testis :

- (i) Produce sperms. $\frac{1}{2}$
 (ii) Produces male hormone / testosterone. $\frac{1}{2}$
 These are located outside the human body, as sperms need lower temperature than the normal body temperature to mature. 1
 Testosterone hormone. 1

[CBSE Marking Scheme, 2016]

19. Breathing is the process of letting in oxygen from air into the lungs and CO_2 out of the lungs. 1

Mechanism : Involuntary, rate controlled by brain. Outward and inward movement of ribs increases or decreases the space of thoracic cavity, action assisted by diaphragm continuous inhalation and exhalation of the air. [CBSE Marking Scheme, 2016] 2

Detailed Answer :

A physical process by which oxygen is taken in and carbon dioxide is given out is called breathing. 1

Breathing in humans involves three steps :

- (i) **Inspiration :** When we breathe in, ribs move up and flatten the diaphragm due to which the chest cavity becomes larger. As a result, air is sucked into the lungs and fills the expanded alveoli.
 (ii) **Gaseous exchange :** Haemoglobin binds with the oxygen and carries it along the blood in the body. As blood passes through the tissues of the body, oxygen from the blood diffuses into the cell, whereas carbon dioxide which is produced during respiration diffuses into the blood and is carried to the lungs for expiration.
 (iii) **Expiration :** Ribs move down and diaphragm becomes dome-shaped decreasing the chest cavity. Thus, pushing the air out from lungs. 2

OR

Characters that a person acquires during one's life time are known as acquired characters / traits. 1

Such changes do not occur in the reproductive tissues. 1

Changes in the non-reproductive tissues are not passed on to the DNA of the germ cells and therefore not inherited by the next generation. [CBSE Marking Scheme, 2018] 1

20. **1st law :** The incident ray, refracted ray and normal, to the interface at the point of incidence, all lie in the same plane.

2nd law : The sine of angle of incidence bears a constant ratio with sine of angle of refraction for a given pair of media. or $\frac{\sin i}{\sin r} = \text{constant}$.

Absolute refractive index of a medium
 $= \frac{\text{speed of light in air (c) or vacuum}}{\text{speed of light in medium (v)}}$

[CBSE Marking Scheme, 2018] 1 + 1 + 1

21. $R = R_1 + R_2 + R_3$
 $R = 5 \Omega + 8 \Omega + 12 \Omega = 25 \Omega$
 $V = 6 \text{ V}$
 $V = IR$
 $\therefore I = \frac{V}{R} = \frac{6 \text{ V}}{25 \Omega} = 0.24 \text{ A}$ 1
 $V = IR = \frac{6 \text{ A} \times 12 \Omega}{25} = 2.88 \text{ V}$ 1

Hence, the reading of ammeter is 0.24 A and voltmeter gives reading of 2.88 V

22. (i) The space around the magnet or current carrying conductor within which its influence can be felt by the magnetic substance. 1
 Magnitude and direction. 1
 (ii) It would mean that at the point of intersection, compass needle would point to two directions which is impossible. 1

[CBSE Marking Scheme, 2013]

23. Biogas is a mixture of methane, carbon dioxide, hydrogen, and hydrogen sulphide. 1
Following steps are involved in obtaining biogas:

- (i) Mixing (Slurry of cattle-dung and water).
 (ii) Digesting (decomposition of cattle-dung by anaerobic bacteria).
 (iii) Formation of biogas.
 (iv) Collecting residue left after the formation of biogas. [CBSE Marking Scheme, 2018-19] 2

OR

The existence of decomposers is essential in a biosphere because they breakdown complex organic substances into simple inorganic substances that can be absorbed by the plants.

Thus, decomposer :

- replenish the soil naturally,
- helps in removing the biodegradable waste.

[CBSE Marking Scheme, 2016] 3

24. We must conserve our forest because :

- They are source of raw materials for our industries.
- They provide us with wood to make furniture and buildings.
- They are source of medicine.
- They provide firewood and food.

(Any three) 1½

Causes of deforestation are :

- Overgrazing
- Building roads and dams
- Natural calamities like forest fire. (Any three)

[CBSE Marking Scheme, 2012] 1½

SECTION C

25. (i) Universal indicator is a mixture of many different indication (or dyes) which give different colours at different pH values of the entire pH scale. The colour produced by universal indicator is used to find the pH value of acid or base by matching the colour with the colours on pH colour chart.

(ii) Solution A is acidic and will turn litmus solution from blue to red.

Solution B is basic and will turn phenolphthalein from colourless to pink.

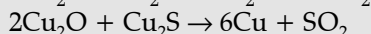
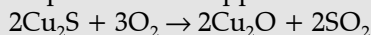
(iii) Green colour will be obtained. 2 + 2 + 1

[CBSE Marking Scheme, 2016]

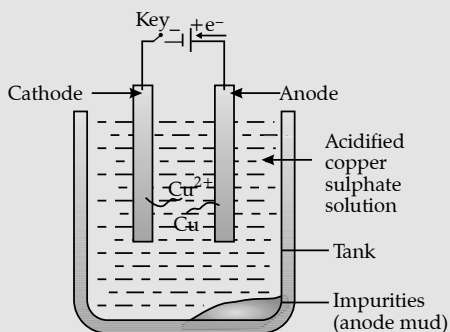
OR

(i) (a) Calcination, (b) Reduction, (c) Purification.
(in the given sequence only)

(ii) Sulphide ore of copper is heated in air.



Labelled diagram of electrolytic refining of copper :

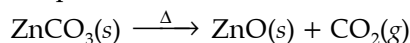


[CBSE Marking scheme, 2018] 5

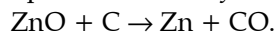
Detailed Answer :

(i) A metal is obtained from its carbonate ore by converting it into its oxide by the process of calcination.

In Calcination, the ore is heated to a high temperature in the absence of air.

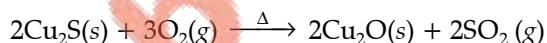


The metal oxides obtained by calcination are converted into the free metal by using reducing agents like carbon, aluminium which depend upon the reactivity of the metal.

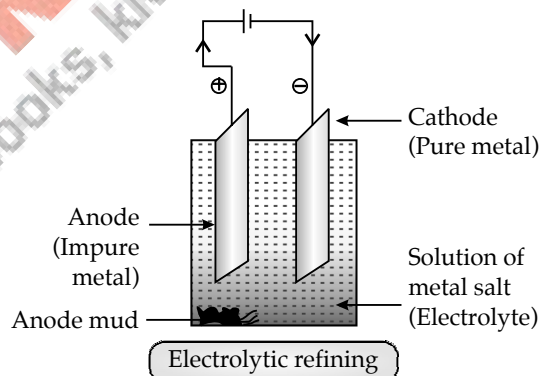


Impure Zn obtained is refined by electrolysis process.

(ii) In the extraction of copper from its sulphide ore, ore is subjected to roasting. Some of it is oxidised to Cu_2O which reacts with the remaining Cu_2S to give copper metal. In this process, Cu_2S behaves as reducing agent.



In electrolytic refining of copper, the impurities left behind at anode called anode mud contains valuable metals such as gold and silver which can be recovered in the native state.



5

Commonly Made Error

- Usually students get confused with the order of the steps in extraction and sulphide ore extraction technique.

Answering Tip

- Understand the concept of ore extraction and the order of the steps involved in the extraction and the equation separately for sulphide and oxide ores. Diagrams are equally important.

26. (a) (i) Dobereiner Periodic Table

Advantage : To predict the atomic mass of middle element in each triad.

Limitation : Dobereiner could identify only three triads.

(ii) Newland Periodic table

Advantage : Every eighth element had properties similar to that of first; co-related the properties of elements with their atomic mass.

Limitation : It was only applicable up to Calcium/ only 56 elements and no future element.

(iii) Mendeleev's Periodic Table

Advantage : Elements with similar properties could be grouped. He predicted the existence of new elements that had not been discovered at that time.

Limitation : No fixed position for hydrogen and isotopes. Atomic masses do not increase in a regular manner.

- (b) Henry Moseley :** Properties of elements are a periodic function of their atomic number. **4+1**
[CBSE Marking Scheme, 2018]

Commonly Made Error

- Students get confused with the characteristics, merits and demerits of different periodic classifications.

Answering Tip

- Learn and understand the basic concepts of each periodic classification, the person's name who is responsible for that periodic classification and make a list of differences.

27. (a) (i) Ovary
(ii) Fallopian tube
(iii) Uterus **3**
- (b) The zygote formed after fertilization in the fallopian tube is implanted in the uterus. It divides repeatedly to form a mass of cells known as embryo. This embryo gets attached to the inner layer of the uterine cavity, i.e., endometrium. It thickens every month and is supplied with blood to nourish the embryo. Soon it gets covered by rapidly dividing uterine cells. This leads to pregnancy. Within a span of some months, the embryo starts developing limbs and begins to resemble a miniature human being. When all body parts of the embryo can be recognised, it becomes a foetus. When this foetus is fully developed, the mother gives birth to the baby. **2**

OR

- (i) **Fossils :** The remains/impression of dead / decayed plants / animals of the parts. **1**
- (ii) **Formation of fossils :** Formed when dead organisms are compressed under high pressure deep under the soil. **1**

(iii) Two methods of determining the age of fossils are :

- (a) Relative method, **½**
(b) Carbon dating method. **½**

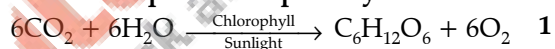
(iv) Importance of fossils :

- (a) The presence of fossilized remains of the organisms is the evidence of existence of the organisms millions of years ago, out of which some have become extinct. **1**
- (b) Fossil also helps in the determination of the connecting links between various groups and their origin from the primitive ones. **1**

28. Photosynthesis takes place in the grana and stroma of the chloroplast (plastid) in green parts of plants. **1**

The raw materials required for this process are carbon dioxide and water in the presence of sunlight and chlorophyll. **1**

Carbon dioxide enters the leaves through stomata and cells of the roots absorb water from the soil. Sunlight is absorbed by the chlorophyll. **1**

Balanced equation for photosynthesis :

The by-product in this process is oxygen gas, liberated. **1**

29. (i) Optical centre : The central point of a lens. **1**

- (ii) Given, $f = -20 \text{ cm}$ **½**
 $h_1 = 4 \text{ cm}, v = -10 \text{ cm}, u = ?, h_2 = ?$

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

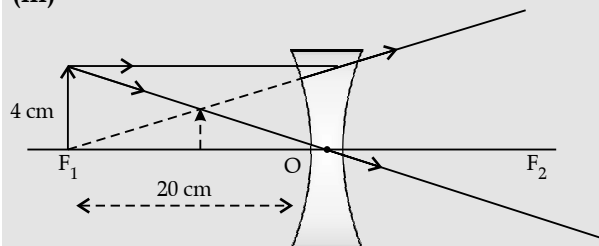
$$\frac{1}{u} = \frac{-1}{10} + \frac{1}{20}$$

$$= \frac{-2+1}{20} = -\frac{1}{20} \quad \mathbf{½}$$

$$u = -20 \text{ cm} \quad \mathbf{1}$$

$$h_i = \frac{v}{u} h_o \quad \mathbf{½}$$

$$= \frac{-10 \text{ cm}}{-20 \text{ cm}} \times 4 = 2 \text{ cm.} \quad \mathbf{½}$$

(iii)[CBSE Marking Scheme, 2016] **1**

OR

(a) Function of :

- **Cornea** : Focuses light rays / permits the light to enter the eye. $\frac{1}{2}$
- **Iris** : Controls amount of light entering the eye, controls the size of pupil. $\frac{1}{2}$
- **Crystalline lens** : Converges light rays onto retina. $\frac{1}{2}$
- **Ciliary muscles** : Adjusts focal length of eye lens by contraction and relaxation so that sharp image can be obtained on the retina. / helps in accommodation. $\frac{1}{2}$

- (b)** In early morning, sunlight has to cover larger distance in the atmosphere. So, the shorter wavelengths scatter out. Only the longer wavelengths like red reach our eye.

On moon – No

Cause : Moon has no atmosphere. 3

[CBSE Marking Scheme, 2018]

Detailed Answer :

- (a) (i) Cornea** : It refracts most of the light into eyes.
- (ii) Iris** : Gives colour to eyes, controls size of pupil.
- (iii) Crystalline Lens** : Focuses the image of

the object on the retina.

(iv) Ciliary Muscles : Holds the eye lens and adjusts its focal length.

- (b)** Early in the morning, the sun is near the horizon, sunlight reaches us after travelling a longer distance through thick layers of atmosphere. Thus, most of the blue light and shorter wavelength are scattered away by the particles in the atmosphere. The light that reaches us is of longer wavelengths giving a reddish appearance.

This phenomenon will not be observed by an astronaut on the moon, because of the absence of atmosphere on the moon. 2 + 3

- 30. (a)** North poles. 1
- (b)** Intersection of magnetic field lines at a point means that the compass needle would point towards two directions at that point, which is not possible. 1
- (c) (i)** Inversely proportional; more radius, less strong magnetic field. 1
- (ii)** Directly proportional; more turns, more strong magnetic field. 1
- (iii)** Directly proportional; more strength of current, more strong magnetic field. 1

[CBSE Marking Scheme, 2016]

□□□

Kopyki

Same textbooks, different prices