ROLL NUMBER				

SET	A

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2023
SCIENCE(086)

CLASS : X
DATE: 25.09.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 80

GENERAL INSTRUCTIONS:

General Instructions:

i. This question paper consists of 39 questions in 5 sections.

ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

iii. Section A consists of 20 objective type questions carrying 1 mark each.

iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.

v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answer to these questions should be in the range of 50 to 80 words.

vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.

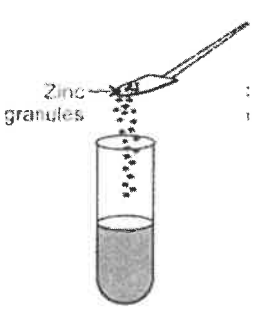
vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

Section-A

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

1. A substance which oxidizes itself and reduces other is known as- 1
   (a) Oxidizing agent (b)Reducing agent (c)Bleaching agent (d)None of these

2. A student added zinc granules to a test tube containing dilute HCl and made the following observation: 1



   (a)The zinc surface became dull and black
   (b) A gas evolved which burnt with a pop sound
   (c) The solution reminded colorless
   (d) The solution becomes green in color

3. A balanced equation is in accordance with- 1
   (a)Avogadro's law
   (b)Law of multiple proportion
   (c)Law of conservation of mass
   (d)Law of gaseous volume

4. An acid(A) with sodium hydrogen carbonate is used in making the cakes fluffy and spongy. It is due to the release of (B) gas in the reaction. Here, A and B are 1
(a) A: Oxalic acid B: CO_2
(b) A: Tartaric acid B: O_2
(c)A: Succinic acid B:H_2
(d)A: Tartaric acid B: CO_2

5. Acetic acid was added to a solid X kept in a test tube. A colorless and odorless gas was evolved. The gas was passed through lime water which turned milky. It was concluded that. 1
(a) Solid X is sodium hydroxide and the gas evolved is CO_2
(b) Solid X is sodium bicarbonate and the gas evolved is CO_2
(c) Solid X is sodium acetate and the gas evolved is CO_2
(d) Solid X is sodium chloride and the gas evolved is CO_2

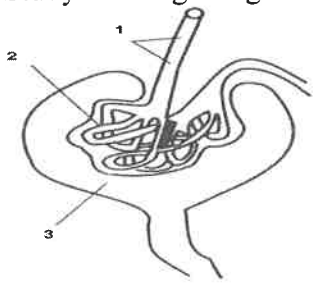
6. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky. The solution contains 1
(a) NaCl (b) HCl (c) LiCl (d) KCl

7. A blue litmus paper was first dipped in dil.HCl and then dil.NaOH solution. It was observed that the color of the litmus paper- 1
(a) Changed to red
(b)Changed first to red and then to blue
(c)Changed blue to colorless
(d)Remains blue in both the solutions

8. Name the substances whose build up in the muscles during vigorous physical exercise may cause cramps? 1
(a) Ethanol + Carbon dioxide + Energy (b) Lactic acid + Energy
(c) Carbon dioxide + Water + Energy (d) Pyruvate

9. Movement of sunflower in accordance with the path of Sun is due to, 1
(a) Chemotropism (b) Geotropism (c) Phototropism (d) Hydrotropism

10. Study the diagram given below and then answer the questions that follows: 1



Name the parts labeled 2 and 3.
(a) 2- Bowman capsule, 3- Glomerulus (b) 2 and 3- Bowman capsule
(c) 2- Glomerulus, 3- Bowman capsule (d) 2- Loop of henle , 3- Glomerulus

11. Which of the following protects the inner lining of stomach from hydrochloric acid? 1
(a) Mucus (b) Bile (c) Pepsin (d) Amylase

12. A microscopic gap between a pair of adjacent neurons over which nerve impulses pass is called 1
(a) Neurotransmitter (b) Dendrites (c) Axon (d) Synapse

13. Magnification produced by a rear view mirror fitted in vehicles 1
(a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it.

14. The focal length of the eye lens increases when eye muscles 1
(a) Are relaxed and lens becomes thinner
(b) Contract and lens becomes thicker
(c) Are relaxed and lens becomes thicker
(d) Contract and lens becomes thinner.

15. Reaction of an acid with a base is known as- 1
(a) Decomposition (b)Combination (c)Redox reaction (d) Neutralization

16. Posture and balance of the body is under the control of 1
(a) Cerebellum (b) Cerebrum (c) Medulla (d) None of these

Question No. 17 to 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, and R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

17. Assertion (A) : Blue colour of sky appears due to scattering of blue colour 1
Reason (R) : Blue light has longer wavelength.

18. Assertion(A): Calcium carbonate when heated gives calcium oxide and water. 1
Reason(R):On heating calcium carbonate decomposition reaction takes place.

19. Assertion(A): Gas bubbles are observed when sodium carbonate is added to dilute hydrochloric acid. 1
Reason(R):Carbon dioxide is given off in the reaction.

20. Assertion (A): Rings of cartilage are present in the throat. 1
Reason (R): These ensure that the air-passage does not collapse.

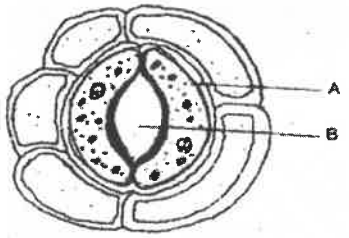
Section – B

Question No. 21 to 26 are very short answer questions

21. Name the oxidizing and reducing agent in the following reaction: 2

$$CuO + H_2 \rightarrow Cu + H_2O$$

22. Study the given diagram: 2
Name the parts 'A' and 'B' and state one function of each.



23. Answer the following: 2
(i) Which hormone is responsible for the changes noticed in females at puberty?
(ii) Dwarfism results due to the deficiency of which hormone?
(iii) Blood sugar level rises due to deficiency of which hormone?
(iv) Iodine is necessary for the synthesis of which hormone?

OR

What happens at the synapse between two neurons?

24. What are the two types of refractive index? 2

25. A student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected? 2

OR

Planets do not twinkle .Why?

26. Write the name and chemical formula of the products formed by heating gypsum at 373K. 2

Section-C

Question No. 27 to 33 are short answer questions

27. (i) Define oxidation and reduction. 3
(ii)Why are decomposition reactions are called the opposite of combination reactions? Give chemical equations for these reactions.

28. (i)List any one observation that are noticed when an iron nail is put inside copper sulphate solution. Write the chemical equation for the reaction that occurs. 3
(ii)Consider the following chemical equation:

X + Barium chloride → Y + Sodium chloride

Identify (a) X and Y (b) The type of reaction

(or)

Give reason.
(i)Curd is not kept in copper and brass utensils, why?
(ii)What is chlor-alkali process? Write a balanced chemical equation for the reaction involved in this process, to justify your answer.

29. Write the function of the following in the human alimentary canal: 3
i) Saliva ii) HCl in stomach iii) Villi

30. Draw a neat diagram of a neuron and label 3
i) dendrite ii) axon iii) cell body

31. Draw a ray diagram of image formed when an object is placed in front of convex lens 3
(i) beyond Center of curvature C_1 and (ii) between focus F_1 and center of curvature C_1

32. (a) What is dispersion of white light? 3
(b)What is the cause of such dispersion?
(c)Draw a diagram to show the dispersion of white light by a glass prism.

33. (a)Write the importance of ciliary muscles in the human eye. 3
(b)Name the defect of vision that arises due to the gradual weakening of the ciliary muscles in old age.
(c) What type of lenses are required by the person suffering from this defect to see the objects clearly?

Section-D

Question No. 34 to 36 are long answer questions.

34. Write a balanced chemical equation for the following statements: 5
a. NaOH solutions is heated with zinc granules.
b. Excess of carbon dioxide is passed through lime water.
c. Dilute sulphuric is added to Potassium carbonate.
d. Egg shell is dropped in Sulphuric acid.
e. Copper (II) oxide reacts with dilute hydrochloric acid.

(OR)

State the reason for the following statements:
a. Tap water conducts electricity whereas distilled water does not.
b. Dry hydrogen chloride gas does not turn blue litmus to red whereas dilute hydrochloric acid does.
c. During summer season, a milkman usually adds a very small amount of baking soda to fresh milk.
d. For dilution of an acid, acid is added to water and not water to acid.
e. Why sodium chloride is a neutral salt?

35. a) Draw a diagram of human excretory system and label 5
i) Part in which urine is produced.
ii) Part which stores urine.
iii) Part which connects (i) and (ii).
b) What are the methods used by plants to get rid of excretory products?

(OR)

a) What is meant by reflex action?
b) Explain the sequence of events that takes place when we touch a hot object.

36. Rishi went to a palmist to show his palm. The palmist used a special lens for this purpose. 5
(i) State the nature of the lens and reason for its use.
(ii) Where should the palmist place/hold the lens so as to have a real and magnified image of an object?
(iii) If the focal length of this lens is 10 cm, the lens is held at a distance of 5 cm from the palm, use lens formula to find the position and magnification of the image

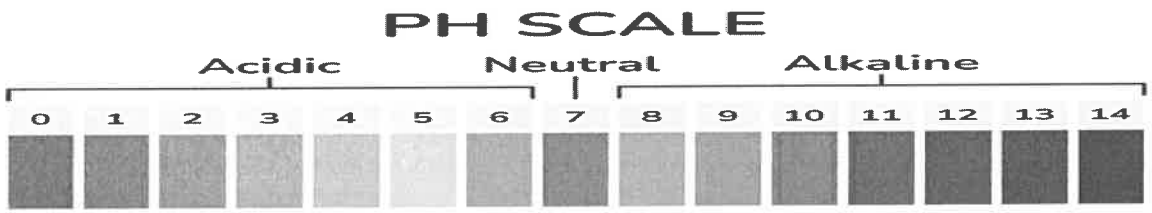
(OR)

(i)What is meant by power of a lens? Define its S.I. unit.
(ii)You have two lenses A and B of focal lengths + 10 cm and -10 cm respectively. State the nature and power of each lens.
(iii)Which of the two lenses will form a virtual and magnified image of an object placed 8 cm from the lens? Draw a ray diagram to justify your answer.

SECTION – E

Question No. 37 to 39 are case-based/data –based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. pH is defined as the measure of hydrogen ion concentration which is used for measuring the acidity or alkalinity of a given solution. pH value of a solution shows that a particular solution 4



is acidic, alkaline or neutral. pH value has great importance in our blood system, manufacturing chemicals, digestion of food, tooth decay, self-defense by animals and altering the acidic and alkaline soil condition, acid rain and. A scale for measuring hydrogen ion concentration in a solution, called pH scale has been developed. The higher the hydrogen ion concentration, the lower is the pH value. Different color represents corresponding pH value of the sample. Based on the above fact answer the followings questions.
a) what is acid rain? Are plants and animal pH sensitive? If yes, how?
b) Name any two chemical substances which are used as antacids? What is its role?

(OR)

Which acid produce painful irritation to human that is present in nettle leaves and honey bee? What is the remedy to get relief form the irritation on skin?

38. A biological phenomenon that indicates growth or turning movements in plants due to the influence of the environment is termed tropic movement in plants or tropism in plants. 4

In English, the word tropism means an action done in a very un-thoughtful manner. But here tropism is a very directional process. In general, tropism is described as 3 step process which includes Sensation to a stimulus, as a living being, it becomes a beneficiary factor for the plants. Signal transduction occurs (in simple words, the environment reaction towards the plant) And finally, the directional growth response takes place.

These are the following steps that give rise to tropism or what we call "tropic movements in plants".

Tropism is seen not only in plants but also in viruses, pathogens and other biological organisms also. This phenomenon is direction-dependent and reacts according to the direction of the stimulus. Other types of tropism in different organisms are also called host tropism, tissue tropism or cell tropism.

a) How does phototropism occur in plants?
b) Differentiate between tropic and nastic movement in plants.

(OR)

Define 'chemotropism' with an example.

39. 4

News spread in a village that a villager has expired due to heart attack. But he has donated beautiful eyes to one of his friends. All the members of the village felt very sad for his untimely death, but on the other hand they were overwhelmed on hearing the donation of his eyes to his friend who wound now be able to see this beautiful nature

a)(i) Name the part of the eye that is used during eye plant.
(ii)What other organs can be donated after death.
(iii)Which part of eye is sensitive to light?

b) **SAY YES OR NO TO THE FOLLOWING QUESTIONS (i) & (ii)**

(i) Diabetic person can donate eye.
(ii) Person with cataract can donate eye.
(iii) How are donated eyes stored?
(iv) Why should eyes be donated?

(OR)

CHOOSE THE CORRECT OPTION TO THE FOLLOWING QUESTIONS (i)&(ii)

(i) When light ray enters the eye, most of the refraction occurs at the
(a)crystalline lens(b)outer surface of cornea(c) iris(d) pupil
(ii) A person gets out in the sunlight from a dark room. How does his pupil regulate and control the light entering the eye?
(a) The size of the pupil will decrease, and less light will enter the eye
(b) The size of the pupil will decrease, and more light will enter the eye
(c) The size of the pupil will remain the same, but more light will enter the eye
(d) The size of the pupil will remain the same, but less light will enter the eye
(iii) What is meant by power of accommodation?

******END OF THE QUESTION PAPER******

ROLL NUMBER					

SET	B

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2023
086 SCIENCE

CLASS : X
DATE: 25.09.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 80

GENERAL INSTRUCTIONS:

General Instructions:

i. This question paper consists of 39 questions in 5 sections.

ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

iii. Section A consists of 20 objective type questions carrying 1 mark each.

iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.

v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answer to these questions should be in the range of 50 to 80 words.

vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.

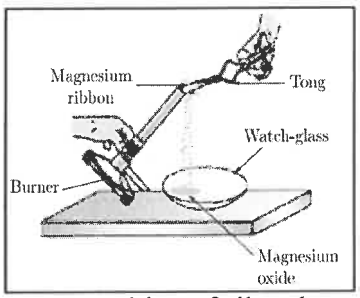
vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

Section-A

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

1. The science teacher ordered Manoj to do the following practical step with magnesium ribbon: 1

1. Clean a magnesium ribbon about 3-4 cm long by rubbing it with sandpaper.
2. Hold it with a pair of tongs. Burn it using a spirit lamp or burner and collect the ash so formed in a watch-glass as shown in Figure. Burn the magnesium ribbon keeping it away as far as possible from your eyes.



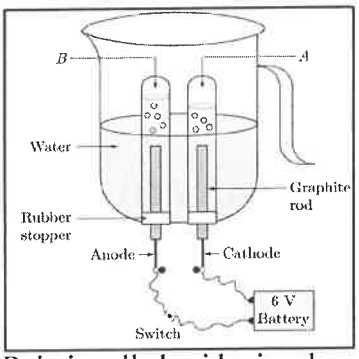
Which of the following reaction is taken place here?

(a) $2Mg + H_2 \rightarrow 2MgH$ (b) $2Mg + O_2 \rightarrow 2MgO$
(c) $2Mg + N_2 \rightarrow 2MgN$ (d) $2Mg + He_2 \rightarrow 2MgHe$

2. Decomposition of silver bromide is used in – 1

(a)Bleaching Cotton (b)Paints (c) Black and White Photography (d)Water treatment

3. An experimental arrangement of formation of gas is shown in the figure: 1



Which gas is present in tube A?
(a) Oxygen (b) Hydrogen
(c) Helium (d) Nitrogen

4. Rain is called acid rain when its- 1
(a)pH falls below 7 (b) pH falls below 6 (c)pH falls below 5.6 (d)pH falls below 6.8

5. Lime reacts with chlorine to give 1
(a)Bleaching powder (b)Baking Powder (c)Baking soda (d)Washing soda

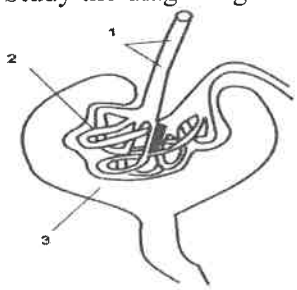
6. Calcium phosphate is present in tooth enamel. Its nature is – 1
(a)Basic (b)Acidic (c)Neutral (d)Amphoteric

7. An aqueous solution turns red litmus solute blue. Excess addition of which of the following solution would reverse the change? 1
(a)Baking powder (b)Lime (c) Ammonium hydroxide solution (d) Hydrochloric acid

8. Name the substances whose build up in the muscles during vigorous physical exercise may cause cramps? 1
(a) Ethanol + Carbon dioxide + Energy (b) Lactic acid + Energy
(c) Carbon dioxide + Water + Energy (d) Pyruvate

9. In which part of the alimentary canal food is finally digested? 1
(a) Stomach (b) Mouth cavity (c) Large intestine (d) Small intestine

10. Study the diagram given below and then answer the questions that follows: 1



Name the parts labeled 2 and 3.
(a) 2- Bowman capsule, 3- Glomerulus (b) 2 and 3- Bowman capsule
(c) 2- Glomerulus, 3- Bowman capsule (d) 2- Loop of henle , 3- Glomerulus

11. The hormone which increases the fertility in males is called 1
(a) Oestrogen (b) Testosterone (c) Insulin (d) Growth hormone

12. A microscopic gap between a pair of adjacent neurons over which nerve impulses pass is called 1
(a) Neurotransmitter (b) Dendrites (c) Axon (d) Synapse

13. Magnification produced by a rear view mirror fitted in vehicles 1
(a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it.

14. The focal length of the eye lens increases when eye muscles: 1
(a) Are relaxed and lens becomes thinner
(b) Contract and lens becomes thicker
(c) Are relaxed and lens becomes thicker

(d) Contract and lens becomes thinner.

15. When the condition of soil is acidic which chemical can be used to neutralize the soil from the given option 1
(a)Calcium hydroxide (b)Ammonium sulphate (c)Sodium Chloride (d)Potassium sulphate

16. Posture and balance of the body is under the control of 1
(a) Cerebellum (b) Cerebrum (c) Medulla (d) None of these

Question No. 17 to 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, and R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

17. Assertion (A): Blue colour of sky appears due to scattering of blue colour. 1
Reason (R) : Blue light has longer wavelength.

18. Assertion(A): All combination reactions are exothermic. 1
Reason(R): In all exothermic reaction heat is evolved during the reaction.

19. Assertion(A): Universal indicator gives green color with distilled water. 1
Reason(R):pH of distilled water is 7 and it is neutral and universal indicator gives green color with neutral solution.

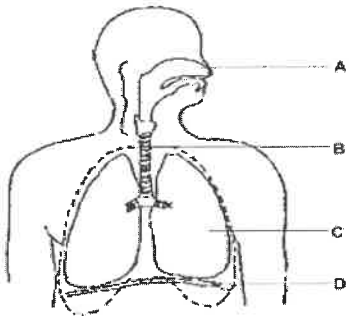
20. Assertion (A): Rings of cartilage are present in the throat. 1
Reason (R): These ensure that the air-passage does not collapse.

Section – B

Question No. 21 to 26 are very short answer questions

21. (i) An aqueous solution of Lead Nitrate reacts with an aqueous solution of KI to give brilliant yellow colored precipitate and potassium nitrate. 2
(ii) Methane gas burns in the presence of air to give carbon dioxide and water vapor.
Convert the above statement into respective chemical equation and also write proper physical state of reactants and products.

22. Study the given diagram: 2
Name the parts A, B, C and D.



23. Answer the following: 2
(i) Which hormone is responsible for the changes noticed in females at puberty?
(ii) Dwarfism results due to the deficiency of which hormone?
(iii) Blood sugar level rises due to deficiency of which hormone?
(iv) Iodine is necessary for the synthesis of which hormone?

OR

What happens at the synapse between two neurons?

24. Name the type of mirror used in the following situations: 2
(i)Rear view mirror in vehicles
(ii) Solar furnace
(iii) Torch
(iv) To get the full length image of tall building.

25. A student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected? 2

OR

Planets do not twinkle .Why ?

26. Classify the following into acidic oxides and basic oxides:Na_2O, SO_2,MgO,CO_2 2

Section-C

Question No. 27 to 33 are short answer questions

27. (i) What is rust? 3
(ii)Identify the most reactive and least reactive metal: Al, K, Ca, Au
(iii)Which of the following is a combination reaction?
(a)$Cl_2 + 2KI \rightarrow 2KCl + I_2$
(b)$2K + Cl_2 \rightarrow 2KCl$

28. Suggest any three ways to prevent the rancidity of food articles. 3

or

(i)Name any two products of 'chlor-alkali process.
(ii)Write an equation to show the reaction between Plaster of Paris and water.
(iii)A white powder is added while baking breads and cakes to make them soft and fluffy. What is the main ingredients in it?

29. Differentiate between an artery and a vein. 3

30. Draw a neat diagram of a neuron and label 3
i) dendrite ii) axon iii) cell body

31. It is desired to obtain an erect image of an object using a concave mirror of focal length 20cm 3
(i) What should be the range of distance of the object from the mirror?
(ii) Will the image be bigger or smaller than the object?
(iii) Draw a ray diagram to show the image formation in this case.

32. (a) What is dispersion of white light? 3
(b)What is the cause of such dispersion?
(c)Draw a diagram to show the dispersion of white light by a glass prism.

33. (a) Write the importance of ciliary muscles in the human eye. 3
(b) Name the defect of vision that arises due to the gradual weakening of the ciliary muscles in old age.
(c) What type of lenses are required by the person suffering from this defect to see the objects clearly?

Section-D

Question No. 34 to 36 are long answer questions.

34. 1. $C_7H_6O_2 + O_2 \rightarrow CO_2 + H_2O$ 5
2.$Fe_2(SO_4)_3 + KOH \rightarrow K_2SO_4 + Fe(OH)_3$
3.$Ca_3(PO_4)_2 + SiO_2 \rightarrow P_4O_{10} + CaSiO_3$
4.$KClO_3 \rightarrow KClO_4 + KCl$
5.$Al_2(SO_4)_3 + Ca(OH)_2 \rightarrow Al(OH)_3 + CaSO_4$

or

Give suitable reasons for the following statements.
(i) Rain water conducts electricity but distilled water does not.
(ii)We feel burning sensation in the stomach when we over eat.
(iii)A tarnished copper vessel regains its shine when rubbed with lemon.
(iv)The crystals of washing soda change to white powder on exposure to air.
(v)An aqueous solution of sodium chloride is neutral but an aqueous solution of sodium carbonate is basic.

35. a) Draw a diagram of human excretory system and label 5
i) Part in which urine is produced.
ii) Part which stores urine.
iii) Part which connects (i) and (ii).

b) What are the methods used by plants to get rid of excretory products?

OR

a) What is meant by reflex action?

b) Explain the sequence of events that takes place when we touch a hot object.

36. Rishi went to a palmist to show his palm. The palmist used a special lens for this purpose. 5

(i) State the nature of the lens and reason for its use.

(ii) Where should the palmist place/hold the lens so as to have a real and magnified image of an object?

(iii) If the focal length of this lens is 10 cm, the lens is held at a distance of 5 cm from the palm, use lens formula to find the position and magnification of the image.

OR

(i)What is meant by power of a lens? Define its S.I. unit.

(ii)You have two lenses A and B of focal lengths + 10 cm and -10 cm respectively. State the nature and power of each lens.

(iii)Which of the two lenses will form a virtual and magnified image of an object placed 8 cm from the lens? Draw a ray diagram to justify your answer.

SECTION - E

Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. In a chemical reaction, reactants are converted to products. The conversion of reacts into product in a chemical reaction is often accompanied by some features which can be observed easily. These easily observed features which take place as a result of chemical reaction are known as characteristics of chemical reactions. Some important characteristics of chemical reactions are: 4

(I)Evolution of heat (II)Formation of precipitate (III)Change in color

(IV)Change in temperature (V)Change in state

Any one of these general characteristics can tell us whether a chemical reaction has taken place or not.

a) (i)Reaction of magnesium with air is a/an

a. exothermic reaction b. endothermic reaction

c. reversible reaction d. substitution reaction

(ii)In which of the following reaction, high amount of heat energy will be evolved?

a. Electrolysis of water b. Dissolution of NH_4Cl

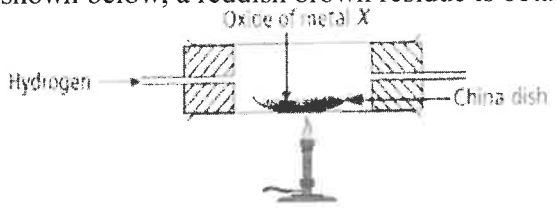
c. Burning of LPG d. Decomposition of AgBr in the presence of light

b) (i) Identify A in the following reaction.

$AlCl_{3(aq)} + 3NH_4OH_{(aq)} \rightarrow A + 3NH_4Cl$

a. $Al(OH)_3$ b. Al_2O_3 c. AlH_3 d. AlN

(ii) When dry hydrogen is passed over a heated oxide of metal X using the apparatus shown below, a reddish brown residue is obtained.



The reddish-brown residue could be

a. Copper b. Lead c. Silver d. Zinc

OR

Displacement reactions is also known as redox reaction. Justify the answer with some example.

38. A biological phenomenon that indicates growth or turning movements in plants due to the influence of the environment is termed tropic movement in plants or tropism in plants. 4

In English, the word tropism means an action done in a very un-thoughtful manner. But here tropism is a very directional process. In general, tropism is described as 3 step process which includes Sensation to a stimulus, as a living being, it becomes a beneficiary factor for the plants. Signal transduction occurs (in simple words, the environment reaction towards the plant) And finally, the directional growth response takes place.
These are the following steps that give rise to tropism or what we call "tropic movements in plants".
Tropism is seen not only in plants but also in viruses, pathogens and other biological organisms also. This phenomenon is direction-dependent and reacts according to the direction of the stimulus. Other types of tropism in different organisms are also called host tropism, tissue tropism or cell tropism.

a) How does phototropism occur in plants?
b) Differentiate between tropic and nastic movement in plants.

OR

Define 'chemotropism' with an example.

39. 4

News spread in a village that a villager has expired due to heart attack. But he has donated beautiful eyes to one of his friends. All the members of the village felt very sad for his untimely death, but on the other hand they were overwhelmed on hearing the donation of his eyes to his friend who wound now be able to see this beautiful nature

a) (i) Name the part of the eye that is used during eye plant.
(ii)What other organs can be donated after death.
(iii)Which part of eye is sensitive to light?

b) SAY YES OR NO TO THE FOLLOWING QUESTIONS (i) & (ii)

(i) Diabetic person can donate eye.
(ii) Person with cataract can donate eye.
(iii) How are donated eyes stored?
(iv) Why should eyes be donated?

(OR)

CHOOSE THE CORRECT OPTION TO THE FOLLOWING QUESTIONS (i)&(ii)

(i) When light ray enters the eye, most of the refraction occurs at the
(a)crystalline lens(b)outer surface of cornea(c) iris(d) pupil

(ii) A person gets out in the sunlight from a dark room. How does his pupil regulate and control the light entering the eye?
(a) The size of the pupil will decrease, and less light will enter the eye
(b) The size of the pupil will decrease, and more light will enter the eye
(c) The size of the pupil will remain the same, but more light will enter the eye
(d) The size of the pupil will remain the same, but less light will enter the eye

(iii)What is meant by power of accommodation?

******END OF THE QUESTION PAPER******

ROLL NUMBER					

SET	C

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2023
SCIENCE (086)

CLASS : X
DATE: 25.09.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 80

GENERAL INSTRUCTIONS:

General Instructions:

i. This question paper consists of 39 questions in 5 sections.

ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

iii. Section A consists of 20 objective type questions carrying 1 mark each.

iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.

v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answer to these questions should be in the range of 50 to 80 words.

vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.

vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

Section-A

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

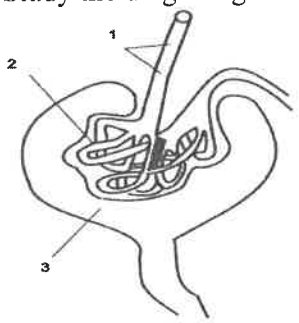
1. A substance which oxidizes itself and reduces other is known as- 1
   (a) Oxidizing agent (b)Reducing agent (c)Bleaching agent (d)None of these
2. Decomposition of silver bromide is used in – 1
   (a)Bleaching Cotton (b)Paints (c) Black and White Photography (d)Water treatment
3. A balanced equation is in accordance with- 1
   (a)Avogadro's law
   (b)Law of multiple proportion
   (c)Law of conservation of mass
   (d)Law of gaseous volume
4. Rain is called acid rain when its- 1
   (a)pH falls below 7 (b) pH falls below 6 (c)pH falls below 5.6 (d)pH falls below 6.8
5. Acetic acid was added to a solid X kept in a test tube. A colorless and odorless gas was evolved. The gas was passed through lime water which turned milky. It was concluded that. 1
   (a) Solid X is sodium hydroxide and the gas evolved is CO_2
   (b) Solid X is sodium bicarbonate and the gas evolved is CO_2
   (c) Solid X is sodium acetate and the gas evolved is CO_2
   (d) Solid X is sodium chloride and the gas evolved is CO_2
6. Calcium phosphate is present in tooth enamel. Its nature is – 1
   (a)Basic (b)Acidic (c)Neutral (d)Amphoteric

7. A blue litmus paper was first dipped in dil. HCl and then dil. NaOH solution. It was observed that the color of the litmus paper- 1
(a) Changed to red
(b)Changed first to red and then to blue
(c)Changed blue to colorless
(d)Remains blue in both the solutions

8. Name the substances whose build up in the muscles during vigorous physical exercise may cause cramps? 1
(a) Ethanol + Carbon dioxide + Energy (b) Lactic acid + Energy
(c) Carbon dioxide + Water + Energy (d) Pyruvate

9. The kind of nutrition found in fungi is 1
(a) Parasitic (b) Saprophytic (c) Holozoic (d) Autotrophic

10. Study the diagram given below and then answer the questions that follows: 1



Name the parts labeled 2 and 3.
(a) 2- Bowman capsule, 3- Glomerulus (b) 2 and 3- Bowman capsule
(c) 2- Glomerulus, 3- Bowman capsule (d) 2- Loop of henle , 3- Glomerulus

11. The urine produced in the kidney, ultimately passed out of the body through 1
(a) Urinary bladder (b) Ureter (c) Urethra (d) Nephron

12. A microscopic gap between a pair of adjacent neurons over which nerve impulses pass is called 1
(a) Neurotransmitter (b) Dendrites (c) Axon (d) Synapse

13. Magnification produced by a rear view mirror fitted in vehicles 1
(a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it.

14. The focal length of the eye lens increases when eye muscles: 1
(a) Are relaxed and lens becomes thinner
(b) Contract and lens becomes thicker
(c) Are relaxed and lens becomes thicker
(d) Contract and lens becomes thinner.

15. When the condition of soil is acidic which chemical can be used to neutralize the soil from the given option 1
(a)Calcium hydroxide (b)Ammonium sulphate (c)Sodium Chloride (d)Potassium sulphate

16. Posture and balance of the body is under the control of 1
(a) Cerebellum (b) Cerebrum (c) Medulla (d) None of these

Question No. 17 to 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, and R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

17. Assertion(A) : The phenomenon of scattering of light by the colloidal particles gives rise to Tyndall effect. 1
Reason (R): The color of the scattered light depends on the size of the scattering particles.

18. Assertion(A): Calcium carbonate when heated gives calcium oxide and water. 1
Reason(R):On heating calcium carbonate decomposition reaction takes place.

19. Assertion(A): Universal indicator gives green color with distilled water. 1
Reason(R):pH of distilled water is 7 and it is neutral and universal indicator gives green color with neutral solution.

20. Assertion (A): Rings of cartilage are present in the throat. 1
Reason (R): These ensure that the air-passage does not collapse.

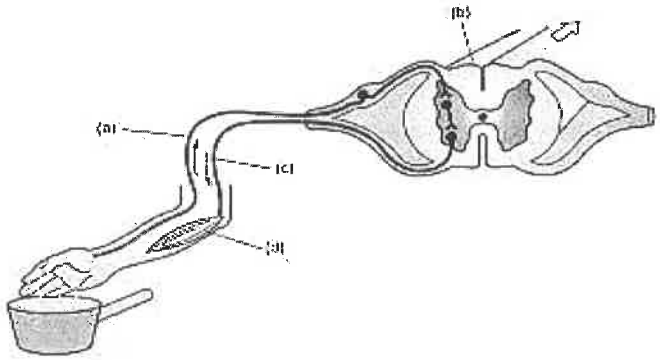
Section – B

Question No. 21 to 26 are very short answer questions

21. Name the oxidizing and reducing agent in the following reaction: 2

$$CuO + H_2 \rightarrow Cu + H_2O$$

22. Study the given diagram: 2
Name the parts A, B, C and D.



23. Answer the following: 2
(i) Which hormone is responsible for the changes noticed in females at puberty?
(ii) Dwarfism results due to the deficiency of which hormone?
(iii) Blood sugar level rises due to deficiency of which hormone?
(iv) Iodine is necessary for the synthesis of which hormone?

OR

What happens at the synapse between two neurons?

24. Name the type of mirror used in the following situations: 2
(i)Rear view mirror in vehicles
(ii) Solar furnace
(iii) Torch
(iv) To get the full length image of tall building.

25. What are the causes of myopia? 2

OR

Why the color of sky is blue? Explain briefly

26. Classify the following into acidic oxides and basic oxides:Na_2O, SO_2,MgO,CO_2 2

Section-C

Question No. 27 to 33 are short answer questions

27. (i) Define oxidation and reduction. 3
(ii)Why are decomposition reactions are called the opposite of combination reactions? Give chemical equations for these reactions.

28. Suggest any three ways to prevent the rancidity of food articles. 3

(OR)

(i)Name any two products of 'chlor-alkali process.
(ii)Write an equation to show the reaction between Plaster of Paris and water.
(iii)A white powder is added while baking breads and cakes to make them soft and fluffy. What is the main ingredients in it?

29. (a) Why is nutrition necessary for the human body? 3
(b) What causes movement of food inside the alimentary canal?
(c) Why is small intestine in herbivores longer than in carnivores?

30. Draw a neat diagram of a neuron and label 3
i) dendrite ii) axon iii) cell body

31. Draw a ray diagram of image formed when an object is placed in front of convex lens 3
(i) At center of curvature C_1 and (ii) between focus F_1 and center of curvature C_1

32. (a) What is dispersion of white light? 3
(b)What is the cause of such dispersion?
(c)Draw a diagram to show the dispersion of white light by a glass prism.

33. (a)Write the importance of ciliary muscles in the human eye. 3
(b)Name the defect of vision that arises due to the gradual weakening of the ciliary muscles in old age.
(c) What type of lenses are required by the person suffering from this defect to see the objects clearly?

Section-D

Question No. 34 to 36 are long answer questions.

34. Write a balanced chemical equation for the following statements: 5
a. NaOH solutions is heated with zinc granules.
b. Excess of carbon dioxide is passed through lime water.
c. Dilute sulphuric is added to Potassium carbonate.
d. Egg shell is dropped in Sulphuric Pacid.
e. Copper (II) oxide reacts with dilute hydrochloric acid.

(OR)

State the reason for the following statements:
a. Tap water conducts electricity whereas distilled water does not.
b. Dry hydrogen chloride gas does not turn blue litmus to red whereas dilute hydrochloric acid does.
c. During summer season, a milkman usually adds a very small amount of baking soda to fresh milk.
d. For dilution of an acid, acid is added to water and not water to acid.
e. Why sodium chloride is a neutral salt?

35. a) Draw a diagram of human excretory system and label 5
i) Part in which urine is produced.
ii) Part which stores urine.
iii) Part which connects (i) and (ii).
b) What are the methods used by plants to get rid of excretory products?

(OR)

a) What is meant by reflex action?
b) Explain the sequence of events that takes place when we touch a hot object.

36. Rishi went to a palmist to show his palm. The palmist used a special lens for this purpose. 5
(i) State the nature of the lens and reason for its use.
(ii) Where should the palmist place/hold the lens so as to have a real and magnified image of an object?
(iii) If the focal length of this lens is 10 cm, the lens is held at a distance of 5 cm from the palm, use lens formula to find the position and magnification of the image.

OR

(i)What is meant by power of a lens? Define its S.I. unit.
(ii)You have two lenses A and B of focal lengths + 20 cm and -20 cm respectively. State the nature and power of each lens.

(iii)Which of the two lenses will form a virtual and magnified image of an object placed 10 cm from the lens? Draw a ray diagram to justify your answer.

SECTION - E

Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. In a chemical reaction, reactants are converted to products. The conversion of reacts into product in a chemical reaction is often accompanied by some features which can be observed easily. These easily observed features which take place as a result of chemical reaction are known as characteristics of chemical reactions. Some important characteristics of chemical reactions are: 4

(I)Evolution of heat (II)Formation of precipitate (III)Change in color
(IV)Change in temperature (V)Change in state

Any one of these general characteristics can tell us whether a chemical reaction has taken place or not.

a) (i)Reaction of magnesium with air is a/an

a. exothermic reaction b. endothermic reaction
c. reversible reaction d. substitution reaction

(ii)In which of the following reaction, high amount of heat energy will be evolved?

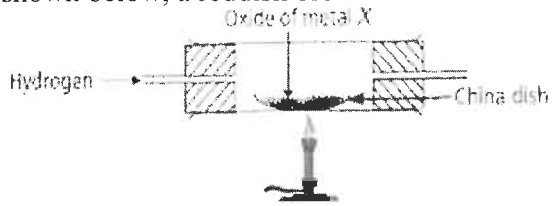
a. Electrolysis of water b. Dissolution of NH_4Cl
c. Burning of LPG d. Decomposition of AgBr in the presence of light

b) (i) Identify A in the following reaction.

$$AlCl_{3(aq)} + 3NH_4OH_{(aq)} \rightarrow A + 3NH_4Cl$$

a. $Al(OH)_3$ b. Al_2O_3 c. AlH_3 d. AlN

(ii) When dry hydrogen is passed over a heated oxide of metal X using the apparatus shown below, a reddish brown residue is obtained.



The reddish-brown residue could be

a.Copper b. Lead c. Silver d. Zinc

OR

Displacement reactions is also known as redox reaction. Justify the answer with some example.

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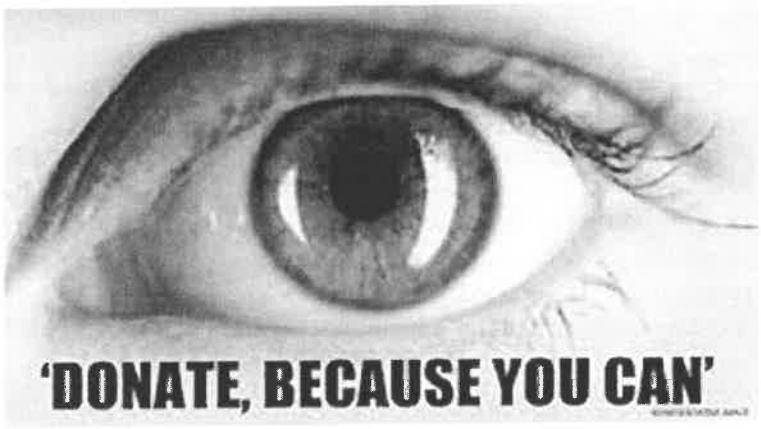

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