



INDIAN SCHOOL MUSCAT

HALF YEARLY EXAMINATION

SCIENCE

CLASS: X

Sub. Code: 086

Time Allotted: 3 Hrs

19.09.2019

Max. Marks:80

General Instructions:

- (i) The question paper comprises of Two sections – A and B. You need to attempt all the sections.
- (ii) All questions are compulsory.
- (iii) Internal choice is given in section B.
- (iv) Question numbers 1 to 20 in Section-A are one-mark questions.
- (v) Question numbers 21 to 30 in Section- B are three mark questions. These are to be answered in about 50 words each.
- (vi) Question numbers 31 to 36 in Section-B are 5 mark questions. These are to be answered in about 70 words each.
- ❖ In Assertion and Reasoning questions, use the following key to choose appropriate answer:
 - a. If both assertion and reason are correct and reason is the correct explanation of the assertion
 - b. If both assertion and reason are correct, but reason is not the correct explanation of the assertion.
 - c. If assertion is correct, but reason is incorrect
 - d. If assertion is incorrect, but reason is correct.
 - e. If both assertion and reason are incorrect.

Section - A

1. An object is placed at the centre of curvature of a concave mirror. The distance between its image and pole is----- 1
 a) Equal to f b) Equal to 2f c) Greater than 2f d) Between f and 2f
2. The focal length of the eye lens increases when ciliary muscles----- 1
 a) Relax and eye lens becomes thinner b) Contract and eye lens becomes thicker
 c) Relax and eye lens becomes thicker d) Contract and eye lens becomes thinner
3. A current of 4.8A is flowing through a conductor. The number of electrons passing per second through the conductor will be----- 1
 a) 3×10^{20} b) 7.68×10^{19} c) 76.8×10^{20} d) 3×10^{19}
4. An object is placed at a distance of 20cm from a convex lens of focal length 10cm. The image produced is ----- 1
 a) Real, inverted and diminished b) Real, inverted and enlarged
 c) Real, inverted and same size d) Virtual, erect and diminished
5. When ferrous sulfate crystals are heated in a test tube, we observe: 1
 a) A colorless gas with no smell is evolved.
 b) A brown gas is evolved.
 c) Green color of salt fades and a gas with the smell of burning sulfur is evolved.
 d) Green color of the salt fades and no gas is evolved.

6. A solution X reacts with crushed egg shells to give a gas which turns lime water milky. The solution contains: 1
 a) NaCl b) HCl c) LiCl d) KCl
7. A metal which can melt when kept on palm: 1
 a) Potassium b) Calcium c) Gallium d) Lead
8. Four drops of red litmus solution were added to each one of the following substances. Which one turns red solution blue? 1
 a) Alcohol b) Distilled water c) Hydrochloric acid d) Sodium hydroxide solution
9. The substance that triggers the fall of mature leaves and fruits from plants is due to 1
 a) Auxin b) Absciscic acid c) Gibberellin d) Cytokinin
10. Which of the following is not an involuntary action? 1
 a) Vomiting c) Heart beat
 b) Salivation d) Chewing
11. What is the role of potassium hydroxide kept in the test tube inside the air tight conical flask to study respiration in germinating seeds? 1
12. A student is observing a permanent slide showing sequentially the different stages of asexual reproduction taking place in the yeast .Name this type of asexual reproduction. Draw any one stage of the process. 1
13. Why is small intestine in herbivores longer than in carnivores? 1
14. The question below consists of statement of an Assertion and a Reason. Use the following key to choose appropriate answer: 1
- ASSERTION :The wall of the left ventricle of human heart are thicker than the wall of the right ventricle
 REASON: Left ventricle has to pump oxygenated blood to all part of the body with more pressure
- a) If both assertion and reason are CORRECT and reason is the CORRECT explanation of the assertion
 b) If both assertion and reason are CORRECT, but reason is NOT THE CORRECT explanation of the assertion
 c) If assertion is CORRECT, but the reason is INCORRECT
 d) If assertion is INCORRECT, but reason is CORRECT
 e) If both assertion and reason are INCORRECT
15. Draw a ray diagram showing the position of the image formed by a convex lens when the object is at infinity. 1
16. Why are danger signals red in colour? 1
17. **Assertion:** ENT specialist uses a concave mirror as head mirror to focus light on body parts like eye, ear and nose. 1
Reason: A concave mirror is more effective and easily available.
 a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion
 b. If both Assertion and Reason are true but Reason is not the correct explanation of

Assertion

- c. If assertion is correct, but reason is incorrect
- d. If assertion is incorrect, but reason is correct

18. When barium chloride solution is mixed with sodium sulfate solution, what will be your observation and why? 1
19. A white salt on heating decomposes to give brown fumes and a residue is left behind. Name the salt and the brown fumes. 1
20. Ionic compounds conduct electricity in molten state. Give reason. 1

Section - B

21. When an object is placed at a distance of 60cm from a convex mirror, the magnification produced is $\frac{1}{2}$. Where should the object be placed to get the magnification equal to $\frac{1}{3}$? 3

OR

- a) Define absolute refractive index.
 - b) Calculate the velocity of light travelling through a glass whose absolute refractive index is 1.5.
22. a) What do you mean by scattering of light? 3
- b) Explain the reason behind advance sunrise and delayed sunset.
23. The potential difference between the terminals of a device is 75V when it draws a current of 5A from the source. What will be the current drawn if the potential difference is increased to 150V. 3

OR

A material of wire having length L and area of cross section A has a resistance of 4Ω . What would be the resistance of another wire of same material having length $4L$ and area of cross section $\frac{1}{4}A$.

24. (a) Name the reducing agent in the following reaction. 3
- $$3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$$
- State which is more reactive, Mn or Al and why.
- (b) Why do we store silver chloride in dark colored bottles?

OR

- (a) Which among the following changes are exothermic or endothermic in nature?
- i) Decomposition of Ferrous sulfate.
 - ii) Dilution of an acid.
- (b) Balance the following chemical equations and identify the type of chemical reaction.
- i) $\text{Cu} + \text{AgNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{Ag}$
 - ii) $\text{H}_2 + \text{N}_2 \rightarrow \text{NH}_3$
25. A student collected some old coins of reddish & grayish color. Within a few months she noticed that red ones turned green while the grayish ones turned black due to some coatings. Answer the following questions: 3
- a) With what material are the coins made?
 - b) Name the chemical phenomenon involved.
 - c) Give the chemical name of the coatings.
26. a) Write the name given to the bases that are highly soluble in water. Give an example. 3
- b) Why does bee sting cause pain and irritation? Rubbing baking soda gives relief. How?
- c) Choose one strong and one weak acid from the following:
- CH_3COOH , H_2SO_4 , H_2CO_3 , HNO_3

OR

- a) A farmer is advised to sprinkle quick lime in his crop field. What would be the problem with the pH of the soil?
- b) The metal salt 'A' is blue in color. When salt 'A', is heated strongly over a burner, then a substance 'B', present in it is eliminated and a white powder 'C' is left behind. When a few drops of a liquid 'D' are added to 'C', it becomes blue again.
- Identify A, B, C and D
 - Give an example of a salt which also shows above properties.
- c) Plaster of Paris should be stored in a water proof bag. Give reason.

27. What is meant by vegetative propagation? List two advantages vegetative propagation. 3

OR

Explain the following processes of asexual reproduction

- Spore formation in Rhizopus
 - Binary fission in Leishmania
 - Multiple fission in Plasmodium
28. List the sequence of events that occur when a plant is exposed to unidirectional light, leading to bending of a growing shoot. Also name the hormone and the type of movement. 3
29.
 - State two functions of stomata
 - How do guard cells regulate the opening and closing of stomata? 3
30. Raj had bread and butter, for his breakfast. Name the secretions produced by the following organs and briefly mention their role in the digestion of bread and butter 5
- Mouth
 - Liver
31.
 - State the laws of refraction of light
 - Draw a labeled ray diagram showing the refraction of light through a rectangular glass slab.
 - Define lateral displacement and mention any two factors on which lateral displacement depend. 5

OR

- State and verify Ohm's law with the help of a circuit diagram
 - A wire of length 2 m and area of cross-section $1.7 \times 10^{-6} \text{ m}^2$ has a resistance of $3 \times 10^{-2} \text{ ohm}$. Calculate the resistivity of the wire.
32.
 - Why does the sky appear to be dark to an astronaut?
 - What do you mean by spectrum of light?
 - Explain with the help of a ray diagram how recombination of white light takes place after passing through two glass prisms. 5
33. a) Suggest a method of Reduction for the following metals during the metallurgical process. 5
- Metal A which is placed at the bottom of the reactivity series.
 - Metal B which is kept at the top of the reactivity series.
 - Metal C which is kept in the middle of the reactivity series.
- b) Show the formation of Na_2O by transfer of electrons between the combining atoms.
- c) Distinguish between an alloy and an Amalgam.

OR

- a) Differentiate between Roasting and calcination with the help of suitable chemical equations.

- b) Name the method used for the refining of impure copper. What would you take as cathode, anode, and electrolyte?
- c) What are amphoteric oxides? Give an example.
34. a) Explain the following chemical properties of acids, with the help of chemical equations only. 5
- When an acid reacts with metal bicarbonate.
 - When an acid reacts with a metal.
 - When an acid reacts with metal carbonate.
- b) You are given three solutions A, B and C with pH values 2, 10 and 13, respectively. Which solution has more hydrogen ion concentration among the three and state the 'acidic' or 'basic' nature of each solution?

35. a) Draw a neat diagram of human brain and 5
- Label Medulla and cerebellum
 - Write the functions of the above mentioned parts
- b) "Both over production and under production of growth hormone leads to disorders in the body". Mention the diseases associated with the disorders

OR

- Draw the diagram of human heart and label the following chambers of the heart which
 - Receive deoxygenated blood from vena cava
 - Sends deoxygenated blood to lungs through pulmonary artery
 - Receive oxygenated blood from the lungs
 - Sends oxygenated blood to all parts of the body through aorta
- Write any two functions of the blood.

36. a) From the two lists below, match each structure with its correct functions associated with respiratory system in human beings: 5

Structure	Functions
a) Alveoli	a) Prevent entry of food into trachea
b) Larynx	b) Carries air down the lungs
c) Trachea	c) Gas exchange take place
d) Epiglottis	d) Produce sound

- b) Give reason for the following:
- Harmful to respire through mouth than through nasal opening
 - Lungs alveoli are covered with blood capillaries
 - Wall of the trachea supported by cartilaginous rings

End of the Question Paper



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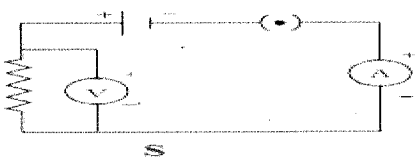
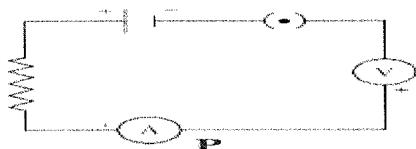
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 - c. If assertion is correct, but reason is incorrect
 - d. If assertion is incorrect, but reason is correct
 - e. If both assertion and reason are incorrect

Section - A

1. A thin lens and a spherical mirror have a focal length of +15cm each. Name the type of given mirror and lens. 1
 - a) Convex lens and concave mirror
 - b) Convex lens and convex mirror
 - c) Concave lens and concave mirror
 - d) Concave lens and convex mirror
2. Which of the following phenomena is based on atmospheric refraction 1
 - a) Tyndall effect
 - b) Colour of sun at sunrise
 - c) Twinkling of stars
 - d) Colour of sun at sunset
3. Which one of the following circuit is properly connected with the electrical components 1



- a) S b) R c) Q d) P

4. In an experiment, the image of a distant object formed by a concave mirror is obtained on a screen. To determine the focal length of the mirror, you need to measure the distance between the
 a) mirror and the screen b) mirror and the object
 c) object and the screen d) mirror and the screen and also between the object and the screen 1
5. What happens when dilute hydrochloric acid is added to iron fillings? 1
 a) Hydrogen gas and iron chloride is produced.
 b) Chlorine gas and iron hydroxide is produced.
 c) No reaction takes place.
 d) Iron salt and water are produced.
6. Metals can be given different shapes according to our needs because 1
 a) Metals are highly reactive. b) Metals are malleable and ductile.
 c) Metals form oxide layer on its surface. d) Metals have high tensile strength.
7. What type of oxides are formed when non- metals react with oxygen? 1
 a) Basic oxides b) Acidic oxides
 c) Neutral oxides d) None of the above
8. A student has four samples A, B, C and D containing dil. HCl , aq. NaCl , dil. NaOH and distilled water respectively. The solutions with equal pH are: 1
 a) A and B b) B and C c) C and D d) B and D
9. The transportation of water from the roots to the top of the plant is done with the help of 1
 a) Xylem b) Cambium c) Phloem d) Both (a) and (b)
10. Bile secreted by the part of the digestive system is 1
 a) Gall bladder b) Liver c) Gastric glands d) Pancreas
11. Johnson observed the temporary mount of a leaf peel under a compound microscope and found pores and kidney shaped cells. Name these parts. 1
12. In the study of binary fission in Amoeba few students made some key observations under the microscope. What would be the major observations step wise? 1
13. What is a synapse? 1
14. The question below consists of statement of an Assertion and a Reason. Use the following key to choose appropriate answer: 1

ASSERTION : The wall of the left ventricle of human heart are thicker than the wall of the right ventricle

REASON: Left ventricle has to pump oxygenated blood to all part of the body with more pressure

- a) If both assertion and reason are CORRECT and reason is the CORRECT explanation of the assertion
- b) If both assertion and reason are CORRECT, but reason is NOT THE CORRECT explanation of the assertion
- c) If assertion is CORRECT, but the reason is INCORRECT
- d) If assertion is INCORRECT, but reason is CORRECT

e) If both assertion and reason are INCORRECT

15. Draw a ray diagram showing the position of the image formed by a convex lens when the object is at infinity. 1
16. A wire of resistivity ρ is pulled to double its length. What will be its new resistivity? Give reason. 1
17. **Assertion:** The connecting wires are made of copper 1
Reason: The electrical conductivity of copper is high
- a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion
 - b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion
 - c) If assertion is correct, but reason is incorrect
 - d) If assertion is incorrect, but reason is correct
18. What will be the nature of solution formed when calcium oxide is dissolved in water? What happens when carbon dioxide gas is passed through this solution? 1
19. Identify the substance oxidized and the substance reduced in the following reaction. 1
$$\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$$
20. Cake or bread swells on adding baking powder? Give reason. 1

Section - B

21. An object is placed 16 cm from a convex mirror of a focal length of 10cm. Find the position, nature and size of the image formed. 3

OR

- a) Can refractive index be less than 1? Give reason.
 - b) With respect to air the refractive index of kerosene is 1.44 and that of diamond is 2.42. Calculate the refractive index of diamond with respect to kerosene.
22. Explain the formation of rainbow with the help of a neat ray diagram 3
23. a) Define SI unit of current 3
b) A tube light draws 0.4 A current from a 220 V supply. What current will this tube light draw when it is connected to a 110 V supply?

OR

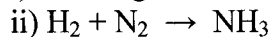
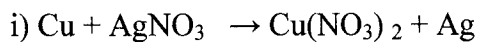
A metal wire of resistivity $0.8 \times 10^{-8} \Omega\text{m}$ has diameter of 0.5mm. What will be the length of this wire if its resistance is 5Ω . Also calculate the resistance for the same length of the wire if its diameter is doubled.

24. Name an ore of mercury and write its chemical composition. Give only the equations for the reactions involved for the extraction of mercury from this ore. 3

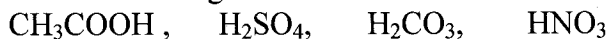
OR

With labelled diagram, describe an activity to find out the necessary conditions for rusting. (Write observations and conclusion)

25. a) Which among the following changes are exothermic or endothermic in nature? 3
i) Decomposition of Ferrous sulfate. ii) Dilution of an acid.
b) Balance the following chemical equations and identify the type of chemical reaction.



26. a) Write the name given to the bases that are highly soluble in water. Give an example. 3
 b) Why does bee sting cause pain and irritation? Rubbing baking soda gives relief. How?
 c) Choose one strong and one weak acid from the following:



OR

- a) A farmer is advised to sprinkle quick lime in his crop field. What would be the problem with the pH of the soil?
 b) The metal salt 'A' is blue in color. When salt 'A', is heated strongly over a burner, then a substance 'B', present in it is eliminated and a white powder 'C' is left behind. When a few drops of a liquid 'D' are added to 'C', it becomes blue again.

i) Identify A, B, C and D

ii) Give an example of a salt which also shows above properties.

- c) Plaster of Paris should be stored in a water proof bag. Give reason.

27. What is translocation? How it take place in plants? 3

OR

Explain how water and minerals are transported in plants?

28. Name the male and female reproductive components of a bisexual flower 3
 Also write the structural parts of female reproductive component and male reproductive component.

29. a) A product is formed in our muscles due to the breakdown of glucose when there is lack of oxygen. Name the product and also mention its effect in our body 3
 b) Mention the name of any one secretion released by the gastric gland and state any one role of it.

30. An endocrine gland 'P' is located below the stomach in the human body. The gland 'P' secretes a hormone 'H' in the body leads to rise in the blood sugar due to which a disease 'D' is caused 5
 a) Name the gland 'P' and the hormone 'H'
 b) Name the disease caused by 'D'
 c) Suggest any one precautions to be taken by the person who is suffering from the disease 'D'

31. a) State and verify Ohm's law with the help of a neat circuit diagram. 5
 b) Define SI unit of resistance.
 c) In an electric circuit with a resistance wire and a cell, the current flowing is I. What would happen to this current if the wire is replaced by another thicker wire of same material and same length. Give reason.

OR

- a) Define principal focus of a concave mirror.
 b) Give two uses of concave mirror
 c) Draw a neat ray diagram showing the image position of an object placed between focal length and pole of a concave mirror. Mention the nature and size of the image thus formed.

32. a) What is myopia? 5
 b) What are the causes for myopia?
 c) Draw neat ray diagrams showing this defect of vision and its correction.

- 33.** a) Suggest a method of Reduction for the following metals during the metallurgical process. 5
- Metal A which is placed at the bottom of reactivity series.
 - Metal B which is kept at the top of Reactivity series.
 - Metal C which is kept in the middle of the reactivity series.
- b) Show the formation of Na_2O by transfer of electrons between the combining atoms.
- c) Distinguish between an alloy and an Amalgam.

OR

- Differentiate between Roasting and calcination with the help of suitable chemical equations.
- Name the method used for the refining of impure copper. What would you take as cathode, anode, and electrolyte?
- What are amphoteric oxides? Give an example.

- 34.** a) Explain the following chemical properties of acids, with the help of chemical equations only. 5
- When an acid reacts with metal bicarbonate.
 - When an acid reacts with a metal.
 - When an acid reacts with metal carbonate.
- b) You are given three solutions A , B and C with pH values 2, 10 and 13, respectively. Which solution has more hydrogen ion concentration among the three and state the 'acidic' or 'basic' nature of each solution?

- 35.** a) Draw a neat labelled diagram for reflex arc and explain their path way 5
- b) Define reflex action? Give two examples for reflex action from our daily life.

OR

- Draw a diagram of human excretory system and label Kidney , Renal artery ,Ureter , Urinary bladder ,
- State in brief the function of a) Urinary bladder b) Ureter

- 36.** a) From the two lists below ,match each structure with its correct functions associated with respiratory system in human beings

Structure	Functions
(i) Alveoli	(i) Prevent entry of food into trachea
(ii) Larynx	(ii) Caries air down the lungs
(iii) Trachea	(iii) Gas exchange take place
(iv) Epiglottis	(iv) Produce sound

- b) Give reason for the following:
- Harmful to respire through mouth than through nasal opening
 - Lungs alveoli are covered with blood capillaries
 - Wall of the trachea supported by cartilaginous rings

End of the Question Paper



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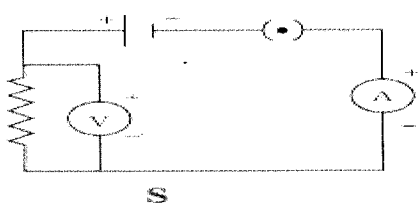
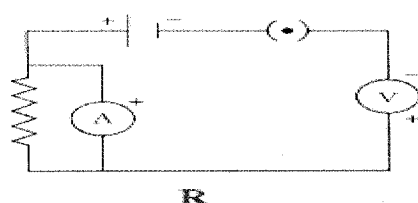
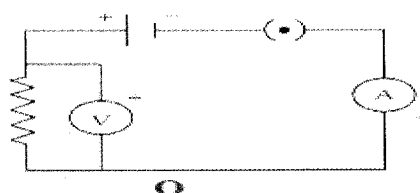
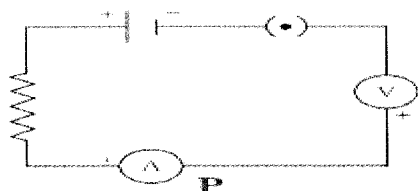
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❖ In Assertion and Reasoning questions, use the following key to choose appropriate answer:

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- If both assertion and reason are correct, but reason is not the correct explanation of the assertion.
- If assertion is correct, but reason is incorrect
- If assertion is incorrect, but reason is correct
- If both assertion and reason are incorrect.

Section - A

1. A thin lens and a spherical mirror have a focal length of -15cm each. Name the type of given mirror and lens. 1
 - a) Convex lens and concave mirror
 - b) Convex lens and convex mirror
 - c) Concave lens and concave mirror
 - d) Concave lens and convex mirror
2. When light rays enter the eye, most of the refraction occurs at the ----- 1
 - a) Crystalline lens
 - b) Outer surface of cornea
 - c) Iris
 - d) Pupil
3. Which one of the following circuit is properly connected with the electrical components? 1



- a) P
- b) Q
- c) R
- d) S

4. What is the nature and size of the image formed by a convex lens when the object is placed between F and 2F 1
 - a) Real, inverted and diminished
 - b) Virtual, erect and diminished
 - c) Virtual, erect and enlarged
 - d) Real, inverted and enlarged
5. When ferrous crystals are heated in a test tube, we observe: 1
 - a) A colorless gas with no smell is evolved.
 - b) A brown gas is evolved.
 - c) Green color of salt fades and a gas with the smell of burning sulfur is evolved.
 - d) Green color of the salt fades and no gas is evolved.
6. Metals can be given different shapes according to our needs because 1
 - a) Metals are highly reactive.
 - b) Metals are malleable and ductile.
 - c) Metals form oxide layer on its surface.
 - d) Metals have high tensile strength.
7. A solution X reacts with crushed egg shells to give a gas which turns lime water milky. The solution contains: 1
 - a) NaCl
 - b) HCl
 - c) LiCl
 - d) KCl
8. A student has four samples A, B, C and D containing dil. HCl, aq. NaCl, dil. NaOH and distilled water respectively. The solutions with equal pH are: 1
 - a) A and B
 - b) B and C
 - c) C and D
 - d) B and D
9. Loss of water in vapour form from leaf surface is 1
 - a) Transportation
 - b) vaporization
 - c) Translocation
 - d) Transpiration
10. Asexual reproduction takes place through budding in 1
 - a) Amoeba
 - b) Yeast
 - c) Plasmodium
 - d) Leishmania
11. Write any two precautions for setting up the experiment to demonstrate that carbon dioxide is evolved during respiration. 1
12. A well stained leaf peel preparation to study stomata when focused under high power of the microscope would show different parts. Name any two parts. 1
13. Why is the rate breathing in aquatic organisms much faster than in terrestrial organisms? 1
14. The question below consists of statement of an Assertion and a Reason. Use the following key to choose appropriate answer: 1

Assertion : Bile contain no enzyme but very essential for protein digestion

Reason : Bile emulsify protein .

 - a) If both assertion and reason are CORRECT and reason is the CORRECT explanation of the assertion
 - b) If both assertion and reason are CORRECT, but reason is NOT THE CORRECT explanation of the assertion
 - c) If assertion is CORRECT, but the reason is INCORRECT
 - d) If assertion is INCORRECT, but reason is CORRECT
 - e) If both assertion and reason are INCORRECT

15. Draw a ray diagram showing the position of the image formed by a concave mirror when the object is at infinity. 1
16. Refractive index of ruby is 1.71. What does it mean? 1
17. **Assertion:** Rainbow is an example of dispersion of sunlight by water droplets. 1
Reason: Light of shorter wavelength is scattered much more than light of longer wavelength.
 a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion
 b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion
 c) If assertion is correct, but reason is incorrect
 d) If assertion is incorrect, but reason is correct
18. When barium chloride solution is mixed with sodium sulfate solution, what will be your observation and why? 1
19. Identify the substance oxidized and the substance reduced in the following reaction. 1

$$\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$$
20. Cake or bread swells on adding baking powder? Give reason. 1

Section - B

21. a) Define magnification of a lens 3
 b) A convex lens produces three times magnified real image of an object placed at 10cm in front of it. Find the position of the image. Also calculate the focal length of the given lens.
- OR**
- a) Define SI unit of power.
 b) A doctor has prescribed a corrective lens of power +1.5D. Find the focal length of the lens. Identify the type of the lens.
22. a) Why do stars appear to twinkle but planets do not. 3
 b) Define the phenomenon that explains it.
23. 100J of work is done in transferring 20C of charge between two points in a conductor. Find the resistance offered by the conductor, if a current of 2A flows through it. 3
- OR**
- A wire with a resistance of 6.0Ω is drawn out so that its new length is three times its original length. Find the resistance of the longer wire, assuming that the resistivity and volume of the material are unchanged.
24. a) Write the name given to the bases that are highly soluble in water. Give an example. 3
 b) Why does bee sting cause pain and irritation? Rubbing baking soda gives relief. How?
 c) Choose one strong and one weak acid from the following:
 CH_3COOH , H_2SO_4 , H_2CO_3 , HNO_3
- OR**
- a) A farmer is advised to sprinkle quick lime in his crop field. What would be the problem with the pH of the soil?
 b) The metal salt 'A' is blue in color. When salt 'A', is heated strongly over a burner, then a substance 'B', present in it is eliminated and a white powder 'C' is left behind. When a few drops of a liquid 'D' are added to 'C', it becomes blue again.

- i) Identify A, B, C and D
- ii) Give an example of a salt which also shows above properties.
- c) Plaster of Paris should be stored in a water proof bag. Give reason.

25. A student collected some old coins of reddish & grayish color. Within a few months she noticed that red ones turned green while the grayish ones turned black due to some coatings. Answer the following questions: 3

- a) With what material are the coins made?
- b) Name the chemical phenomenon involved.
- c) Give the chemical name of the coatings.

26. a) Name the reducing agent in the following reaction. 3

$$3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$$

State which is more reactive, Mn or Al and why.

- b) Why do we store silver chloride in dark colored bottles?

OR

a) Which among the following changes are exothermic or endothermic in nature?

- i) Decomposition of Ferrous sulfate.
- ii) Dilution of an acid.

b) Balance the following chemical equations and identify the type of chemical reaction.

- i) $\text{Cu} + \text{AgNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{Ag}$
- ii) $\text{H}_2 + \text{N}_2 \rightarrow \text{NH}_3$

27. a) List two major steps in the formation of urine in human being and explain shortly 3
 b) Define excretion

OR

- a) What are the methods used by plants to get rid of excretory products?
- b) State two advantages of transpiration to plant body.

28. Explain the feedback mechanism to regulate the hormone production and action with the help of one suitable example. 3

29. a) Name the largest artery in the human body. 3
 b) Write the component of blood which transport
 i) Oxygen
 ii) Food and nitrogenous waste materials
 c) Give two differences between artery and vein

30. a) How is the process of binary fission different in Amoeba and Leishmania? 5
 b) What happens when
 i) Bryophyllum leaf falls on the wet soil
 ii) On maturation sporangia of Rhizopus bursts?

31. a) Define principal focus of a convex mirror. 5
 b) Mention any one use of convex mirror in daily life
 c) Draw a neat ray diagram showing the image position of the object when it is placed anywhere between infinity and pole of a convex mirror. Mention the nature and size of the image thus formed.

OR

- a) State and verify Ohm's law with the help of a circuit diagram.
- b) Calculate the area of cross section of a wire of length 2m, its resistance 25Ω and resistivity of the material of wire is $1.84 \times 10^{-6} \Omega\text{m}$

32. a) What is hypermetropia? 5
 b) What are the causes for hypermetropia?
 c) Draw ray diagrams showing this defect of vision and its correction.
33. a) Suggest a method of Reduction for the following metals during the metallurgical process. 5
 i) Metal A which is placed at the bottom of the reactivity series.
 ii) Metal B which is kept at the top of the reactivity series.
 iii) Metal C which is kept in the middle of the reactivity series.
 b) Show the formation of Na_2O by transfer of electrons between the combining atoms.
 c) Distinguish between an alloy and an Amalgam.

OR

- a) Differentiate between Roasting and calcination with the help of suitable chemical equations.
 b) Name the method used for the refining of impure copper. What would you take as cathode, anode, and electrolyte?
 c) What are amphoteric oxides? Give an example.
34. a) Explain the following chemical properties of acids, with the help of chemical equations only. 5
 i) When an acid reacts with metal bicarbonate.
 ii) When an acid reacts with a metal.
 iii) When an acid reacts with metal carbonate.
 b) You are given three solutions A, B and C with pH values 2, 10 and 13, respectively. Which solution has more hydrogen ion concentration among the three and state the 'acidic' or 'basic' nature of each solution?

35. a) Differentiate between trypsin and amylase based on the organ where they are produced and their action 5
 b) Mention any two structural adaptations of villi in the small intestine which help in absorption of the digested food
 c) What is the role of hydrochloric acid in the stomach?

OR

- a) Draw a diagram of human excretory system and label kidney, ureter, Urinary bladder, Renal artery on it
 b) State in brief the function of
 i) Renal artery ii) kidney iii) ureter iv) Urinary bladder
36. a) From the two lists below, match each structure with its correct functions associated with respiratory system in human beings

Structure	Functions
i) Diaphragm	i) Prevent entry of food into trachea
ii) Haemoglobin	ii) Carries air down the lungs
iii) Trachea	iii) Separate thorax from the abdomen
iv) Epiglottis	iv) Respiratory pigment

- b) Give reason for the following:
 i) Harmful to respire through mouth than through nasal opening
 ii) How are the alveoli structurally adapted in human beings to perform their function?

End of the Question Paper