ROLL NUMBER				

SET	A

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2022
SCIENCE (086)

CLASS: X
DATE: 11/9/22

TIME ALLOTED: 3 HRS.
MAXIMUM MARKS:80

GENERAL INSTRUCTIONS:

(i) The question paper comprises two sections A and B. There are 35 questions in the question paper. All questions are compulsory.

(ii) Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each. These questions contain case study questions, very short answer questions and assertion - reason type questions.

(iii) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each,
question no. 27 to 32 are short answer type questions, carrying 3 marks each.
question no. - 33 to 35 are long answer type questions carrying 5 marks each.

(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

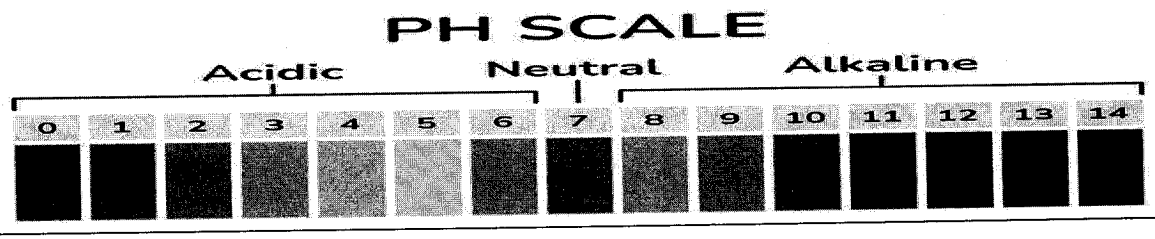
(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION - A

1.	State Snell's law of refraction of light	1
2.	What do you mean by least distance of distinct vision	1
3.	An object is placed in front of a concave mirror of focal length 50mm and it produces an erect image. Calculate the radius of curvature of the mirror.	1
4.	The refractive indices of glass = 1.52; air = 1.0003 and water = 1.333. Based on these values, arrange the speed of light through them in the decreasing order.	1
5.	Explain how the pupil regulates the amount of light entering the eye lens	1
6.	Define principal focus of a convex mirror	1
7.	Name the two factors on which lateral displacement depend.	1

8.	The tooth enamel of our teeth is made up of hard mass known as _____.	1
9.	What possible reaction names can be given when magnesium ribbon burns in air?	1
10.	Find odd one out from the given options. NaCl, KCl, NH_4Cl and KNO_3	1
11.	***Question No.11 consist of two*** statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate options 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 **Assertion:** Acids bases reaction is also known as double displacement reaction. **Reason:** Exchange of ions will take place and a precipitation may or may not happen.	1
12.	Which of these correctly represent the order with respect to the acidic strength? (a) Acetic Acid < Water < Hydrochloric Acid (b) Hydrochloric Acid < Water < Acetic Acid (c) Water < Acetic Acid < Hydrochloric Acid (d) Hydrochloric Acid < Acetic Acid < Water	1
13.	Why does lack of oxygen in muscles often lead to cramps among cricketers?	1
14.	If salivary amylase is lacking in the saliva, which event in the mouth cavity will be affected?	1
15.	Why is DNA copying an essential part of the process of reproduction?	1
16.	**Assertion:** Asexual reproduction is a primitive type of reproduction. **Reason**: Asexual reproduction involves only mitotic cell division. a) Both Assertion and Reason are correct and reason is the correct explanation for assertion. b) Both Assertion and Reason are correct and reason is not the correct explanation for assertion. c) Assertion is true but Reason is false. d) Both Assertion and Reason are false.	1
17.	Read the following passage and answer the questions given below. Reflecting surface do not have to be flat. The most common curved mirrors are spherical. A spherical mirror is called convex if the reflection takes place on the outer surface. A mirror is called concave if the reflecting surface is on the inner surface of the sphere. For an object	

	infinitely far away the ray should be precisely parallel. Both concave and convex mirrors find immense application in our day- to-day life.	
	(i) The laws of reflection is true for (a) Convex mirror only (b) Concave mirror only (c) All reflecting surfaces (d)All refracting surfaces	1
	(ii) The amount of light reflected from a surface depends on---------- (a)Smoothness of the reflecting surface (b) Nature of the reflecting surface (c) Nature of material of the object (d) Circumference of the reflecting surface	1
	(iii) The angle between incident ray and plane mirror is 40^0.What will be the total angle between incident ray and reflected ray. (a) 20^0 (b)70^0 (c) 40^0 (d) 80^0	1
	(iv) Choose the statement that is incorrect. a) Convex mirror can form diminished virtual image b) Convex mirror can form diminished real image c) Concave mirror can form magnified virtual image d) Concave mirror can form magnified real image	1
	(v) Which among the following mirror is used in search light. (a) Concave lens (b) Convex mirror (c) Concave mirror (d) Plane mirror	1
18.	Read the following passage and answer the questions given below. Eye is a natural optical device by which human beings could see objects around them. It forms an inverted, real image on a light sensitive surface. It works on the phenomenon of refraction of light through a natural convex lens. However, Meena was not able to see clearly the words written on the blackboard placed at a distance of about 3m from her. Her mother discussed the same with the doctor. The doctor explained to her about this defect of vision and its correction.	
	(i) The type of defect Meena is suffering from is ---------- a) Presbyopia b) Hypermetropia c) Myopia d) Malnutrition	1

	(ii) The closest distance up to which a person can see clearly is ---------- a) 35cm b) 50cm c) 15cm d) 25cm	1
	(iii) The outermost part of human eye is called---------- a) Pupil b) Cornea c) Retina d) Iris	1
	(iv) The ability of human eye to adjust its focal length to see far and nearby objects clearly is called---------- a) Power of accommodation b) Least distance of distinct vision c) Persistence of vision d) Defective vision	1
	(v) The defective vision of a person's eye lens has a focal length of - 0.5m. The power of the lens will be ---------- a) + 2D b) - 2D c) + 5D d) - 5D	1
19.	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 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 and acid rain. 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.	
	(i) What is the pH range that must be maintained in our blood system? (a) 6-7 (b)7-7.8 (c)8-9 (d)12-14	1
	(ii) Which acid is present in the animal self-defense system? (a) Hydrochloric acid (b)Sulphuric acid (c)Methanoic acid (d)Ethanoic acid	1
	(iii) Which chemical substance is suitable to neutralize the acidic soil? (a) Water (b) Chloroform (c)Chalk powder (d) vinegar solution	1
	(iv) The rain becomes acid rain when the value of pH falls below- (a)7.8 (b)8.5 (c)11.5 (d)5.6	1
	(v) Which chemical substance is needed to get relief from acidity? (a)NaOH (b) $Ca(OH)_2$ (c) $ZnCl_2$ (d)$Mg(OH)_2$	1
20.	In a general sense reproduction is one of the most important concepts in biology: it means making a copy, a likeness, and thereby providing for the continued existence of species. Although reproduction is often considered solely in terms of the production of offspring in animals and plants, the more general meaning has far greater significance to living organisms. To appreciate this fact, the origin of life and the evolution of organisms must be considered. One of the first characteristics of life that emerged in primeval times must have been the ability of some primitive chemical system to make copies of itself.	
	(i) During favourable conditions, Amoeba reproduces by a) Multiple Fission b) Binary Fission c) Budding d) Fragmentation	1
	(ii) A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that a) They reproduce asexually b) They are all unicellular c) They reproduce sexually d) They are multicellular	1
	(iii) Bryophyllum can be propagated vegetatively by the a) Stem b) Root c) Leaf d) Flower	1
	(iv) Spirogyra reproduce by a) Budding b) Fragmentation c) Regeneration d) Spore Formation	1
	(v) Plants like banana, rose, jasmine have lost the capacity to produce a) Seeds b) Buds c) Flower d) Roots	1

	Section - B	
21.	Draw a ray diagram showing the path of light ray travelling through a rectangular glass slab and label its parts.	2
22.	List out any two uses of bleaching powder.	2
23.	$CuO + H_2 \rightarrow Cu + H_2O$ In the above redox reaction find oxidizing and reducing agent.	2
24.	Why metal oxides are basic whereas non-metals oxides are acidic?	2
25.	Why is small intestine in herbivores longer than in carnivores?	2
26.	(a) Define excretion. (b) Name the basic filtration unit present in the kidney.	2
27.	Differentiate between binary fission and multiple fission in a tabular form.	3
28.	An object 5.0 cm in length is placed at a distance of 20 cm in front of a convex mirror with a radius of curvature of 30 cm. Find the position of the image formed. Also draw a neat ray diagram to show the image formation by a convex mirror when the object is placed anywhere between infinity and pole of the mirror. **Or** An object placed 4 cm in front of a converging lens produces a real image 12 cm from the lens. What is the magnification of the image? What is the focal length of the lens? Also draw the ray diagram to show the formation of this image.	3
29.	(i) What is decomposition reaction? (ii) What happens when ferrous sulphate crystal undergoes thermal decomposition reaction? Write the chemical equation.	3
30.	(a) (i)What is the reaction of acids with metal hydrogen carbonate? (ii)How will you test the colorless gas evolved during the above reaction? (iii)What happens when excess of colorless gas is passed into the product formed in above reaction? **Or** (b) (i) What is baking soda? (ii) How will you prepare baking soda? Give respective preparation method. (iii) Why we use baking powder in cookery items?	3
31.	What is asexual reproduction? Write the process of budding in Hydra.	3

32.	Draw a flow chart to show the breakdown of glucose by various pathways. **Or** Draw a diagram of human respiratory system and label –Nasal cavity, trachea, lungs, diaphragm and alveolar sac on it.	3
33.	With the help of a neat labeled diagram, explain the structure of normal human eye that enables a person to see the objects clearly. **Or** a) What do you mean by hypermetropia? b) What are its causes c) Name the lens used to correct this defect of vision. d) Draw the respective ray diagrams for defective and corrective vision	5
34.	(a) (i)What is a redox reaction? (ii)Find oxidizing, reducing, substance oxidized and reduced in the following reactions (1)$Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$ (2)$MnO_2 + 4HCl \rightarrow MnCl_2 + Cl_2 + 2H_2O$ **Or** (b) (i) What is a rust? Give its formula. (ii) What is rancidity? Give two points to prevent rancidity.	5
35.	Write three types of blood vessels. Give one important feature of each. **Or** Draw a neat diagram of the human excretory system and label following parts: (i) Urethra (ii) Kidney (iii) Ureter (iv) Urinary bladder	5
	******END OF THE QUESTION PAPER******	

ROLL NUMBER				

SET	B

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2022
SCIENCE (086)

CLASS: X
DATE: 11/09/2022

TIME ALLOTED: 3 HRS.
MAXIMUM MARKS: 80

GENERAL INSTRUCTIONS:

(i) The question paper comprises two sections A and B. There are 35 questions in the question paper. All questions are compulsory.

(ii) Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each. These questions contain case study questions, very short answer questions and assertion - reason type questions.

(iii) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each, question no. 27 to 32 are short answer type questions, carrying 3 marks each. question no. - 33 to 35 are long answer type questions carrying 5 marks each.

(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

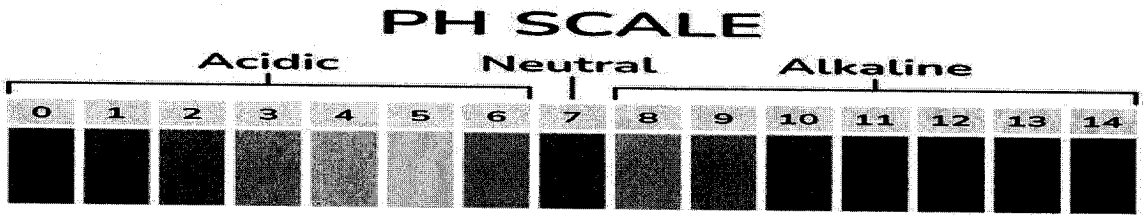
SECTION - A

1.	State the laws of reflection of light	1
2.	Define principal focus of a concave mirror	1
3.	The magnification produced by a lens is - 5. what does it mean?	1
4.	Convex mirrors are used as rear view mirrors in vehicles. Give reason.	1
5.	How does ciliary muscles control the focal length of eye lens?	1
6.	What do you mean by lateral displacement?	1
7.	Light travels through water with a speed of 2.25×10^8 m/s. What is the refractive index of water? (Take $c = 3 \times 10^8$ m/s)	1
8.	The water soluble bases are known as _____.	1
9.	Which chemical substance is used in black and white photography?	1
10.	Find odd one out from the given options. Onion peel, Turmeric Powder, China rose, Phenolphthalein	1

11.	***Question No.11 consist of two*** statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate options 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 **Assertion:** The dilution of acids and bases decreases the concentration of H^+ or OH^- ions per unit volume of the solutions. **Reason :** For making dilution of acid or base, it must be added to water with constant stirring.	1
12.	Which of the correctly represent the order with respect to basic strength? (a) Ammonium hydroxide < Water < Sodium hydroxide (b) Sodium hydroxide < Water < Ammonium hydroxide (c) Water < Ammonium hydroxide < Sodium hydroxide Sodium hydroxide < Ammonium hydroxide < Water	1
13.	Why does lack of oxygen in muscles often lead to cramps among cricketers?	1
14.	If salivary amylase is lacking in the saliva, which event in the mouth cavity will be affected?	1
15.	Name the respiratory organs of i) Fish ii) Earthworm	1
16.	**Assertion:** Asexual reproduction is a primitive type of reproduction. **Reason**: Asexual reproduction involves only mitotic cell division. a) Both Assertion and Reason are correct and reason is the correct explanation for assertion. b) Both Assertion and Reason are correct and reason is not the correct explanation for assertion. c) Assertion is true but Reason is false. d) Both Assertion and Reason are false.	1
17.	Read the following passage and answer the questions given below. Eye is a natural optical device by which human beings could see objects around them. It forms an inverted, real image on a light sensitive surface. It works on the phenomenon of refraction of light through a natural convex lens. However, Meena was not able to see clearly the words written on the blackboard placed at a distance of about 3m from her. Her mother	

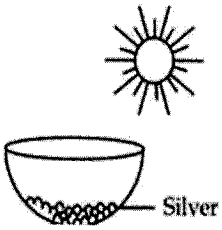
	discussed the same with the doctor. The doctor explained to her about this defect of vision and its correction.	
	(i) The outermost part of human eye is called---------- a) Pupil b) Retina c) Iris d) Cornea	1
	(ii) The type of defect Meena is suffering from is ---------- a) Presbyopia b) Hypermetropia c) Myopia d) Malnutrition	1
	(iii) The least distance upto which a person can see clearly is ---------- a) 35cm b) 50cm c) 25cm d) 15cm	1
	(iv) The defective eye of a person has focal length 0.5m. The power of the lens will be -------- a) + 2D b) - 2D c) + 5D d) - 5D	1
	(v) The ability of human eye to adjust its focal length to see far and nearby objects clearly is called---------- a) Power of accommodation b) Least distance of distinct vision c) Persistence of vision d) Defective vision	1
18.	Read the following passage and answer the questions given below. Reflecting surface do not have to be flat. The most common curved mirrors are spherical. A spherical mirror is called convex if the reflection takes place on the outer surface. A mirror is	

	called concave if the reflecting surface is on the inner surface of the sphere. For an object infinitely far away the ray should be precisely parallel. Both concave and convex mirrors find immense application in our day- to-day life.	
	(i) The laws of reflection are true for---------- a) Convex mirror only b) Concave mirror only c) All refracting surfaces d) All reflecting surfaces	1
	(ii) The amount of light reflected from a surface depends on---------- a) Smoothness of the reflecting surface b) Nature of the reflecting surface c) Nature of material of the object d) Circumference of the reflecting surface	1
	(iii) The angle between incident ray and plane mirror is 40^0.What will be the total angle between incident ray and reflected ray a) 20^0 b) 80^0 c) 40^0 d) 70^0	1
	(iv) Choose the statement that is incorrect. a) Convex mirror can form diminished virtual image b) Convex mirror can form diminished real image c) Concave mirror can form magnified virtual image d) Concave mirror can form magnified real image	1
	(v) Which among the following is used in search- lights? a) Concave lens b) Convex mirror c) Concave mirror d) Plane mirror	1

19.	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 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 and acid rain. 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.	
19 i	(i) What is the pH range that must be maintained in our blood system? (a) 6-7 (b)7-7.8 (c)8-9 (d)12-14	1
	(ii) Which acid is present in the animal self-defense system? (a) Hydrochloric acid (b)Sulphuric acid (c)Methanoic acid (d)Ethanoic acid	1
	(iii) Which chemical substance is suitable to neutralize the acidic soil? (a) Water (b) Chloroform (c)Chalk powder (d) vinegar solution	1
	(iv) The rain becomes acid rain when the value of pH falls below- (a)7.8 (b)8.5 (c)11.5 (d)5.6	1
	(v) Which chemical substance is needed to get relief from acidity? (a) NaOH (b) $Ca(OH)_2$ (c) $ZnCl_2$ (d)$Mg(OH)_2$	1
20.	In a general sense reproduction is one of the most important concepts in biology: it means making a copy, a likeness, and thereby providing for the continued existence of species. Although reproduction is often considered solely in terms of the production of offspring in animals and plants, the more general meaning has far greater significance to living organisms. To appreciate this fact, the origin of life and the evolution of organisms must be considered. One of the first characteristics of life that emerged in primeval times must have been the ability of some primitive chemical system to make copies of itself.	
	(i) During favourable conditions, Amoeba reproduces by a) Multiple Fission b) Binary Fission c) Budding d) Fragmentation	1

	(ii) A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that: a) They reproduce asexually b) They are all unicellular c) They reproduce sexually d) They are multicellular	1
	(iii) Bryophyllum can be propagated vegetatively by the: a) Stem b) Root c) Leaf d) Flower	1
	(iv) Spirogyra reproduces by: a) Budding b) Fragmentation c) Regeneration d) Spore Formation	1
	(v) Plants like banana, rose, jasmine have lost the capacity to produce: a) Seeds b) Buds c) Flower d) Roots	1
	Section - B	
21.	Draw a ray diagram showing the path of light ray travelling through a rectangular glass slab and label its parts.	2
22.	Write the chemical formula for POP? Write one use of POP.	2
23.	Why respiration is a special type of exothermic reaction?	2
24.	Write equation for the reaction of marble chips with Sulphuric acid? List one observation.	2
25.	Why is small intestine in herbivores longer than in carnivores?	2
26.	Differentiate between autotrophs and heterotrophs and give one example of each.	2
27.	Differentiate between binary fission and multiple fission in a tabular form.	3
28.	The filament of a lamp is 80 cm from a screen and a converging lens forms an image of it on a screen, magnified three times. Find the image distance and focal length of the lens. **Or** A 6cm tall object is placed perpendicular to the principal axis of a concave mirror of focal length 30cm. The distance of the object from the mirror is 45cm. Find the position of the image formed. Also draw a neat ray diagram to show the image formation in this case.	3
29.	(a)What is a displacement reaction? (b)Predict and complete the displacement reaction if the reaction is possible. (i) $CuSO_4 + Fe \rightarrow ?$ (ii) $Al_2(SO_4)_3 + Fe \rightarrow ?$	3
30.	(a)You have two solutions, A and B. The pH of solution A is 6 and pH of solution B is 8. (i)Which solution has more hydrogen ion concentration? (ii)Which of this acidic and which one is basic? (ii) Why does an aqueous solution of an acid conduct electricity	3

	Or (b)(i) What is chloralkali process? (ii)Which gas is liberated at anode and cathode and write the overall reaction?	
31.	Explain briefly the different stages of nutrition in amoeba.	3
32.	Draw a flow chart to show the breakdown of glucose by various pathways. Or Draw a diagram of human respiratory system and label –Nasal cavity, trachea, lungs, diaphragm and alveolar sac on it.	3
33.	(a) What do you mean by hypermetropia? (b) What are its causes (c) Name the lens used to correct this defect of vision. (d) Draw the respective ray diagrams for defective and corrective vision **Or** (a) What do you mean by presbyopia? (b) What are its causes (c) How can this defect of vision be corrected? (d) Define power of accommodation of eye	5
34.	(a)Balance the following equation (i) $CH_4+O_2 \rightarrow CO_2 + H_2O$ (ii) $Pb(NO_3)_2+ KI \rightarrow PbI_2 + KNO_3$ (iii)$NH_3+ O_2 \rightarrow NO+ H_2O$ (iv) $C_2H_5OH + O_2 \rightarrow CO_2 + H_2O$ (v) $Fe + HCl \rightarrow FeCl_2 + H_2$ Or (b)The following diagram displays a chemical reaction. Observe it and answer the following questions:	5

	 (i)Identify the type of chemical reaction that will take place and define it. (ii)How will the color of salt change? (iii)Mention one commercial use of this salt. (iv) Translate the below given statement into a balanced chemical equation. Barium chloride reacts with aluminium sulphate to give aluminium chloride and barium sulphate.	
35.	Write three types of blood vessels. Give one important feature of each. **Or** Draw a neat diagram of the human excretory system and label following parts: (i) Urethra (ii) Kidney (iii) Ureter (iv) Urinary bladder	5
	******END OF THE QUESTION PAPER******	

ROLL NUMBER					

SET	C

INDIAN SCHOOL MUSCAT
HALF YEARLY EXAMINATION 2022
086 SCIENCE

CLASS: X
DATE:11/9/22

TIME ALLOTED: 3 HRS.
MAXIMUM MARKS:80

GENERAL INSTRUCTIONS:

(i) The question paper comprises two sections A and B. There are 35 questions in the question paper. All questions are compulsory.

(ii) Section–A - question no. 1 to 20 - all questions and parts thereof are of one mark each. These questions contain case study questions, very short answer questions and assertion - reason type questions.

(iii) Section–B - question no. 21 to 26 are short answer type questions, carrying 2 marks each, question no. 27 to 32 are short answer type questions, carrying 3 marks each. question no. - 33 to 35 are long answer type questions carrying 5 marks each.

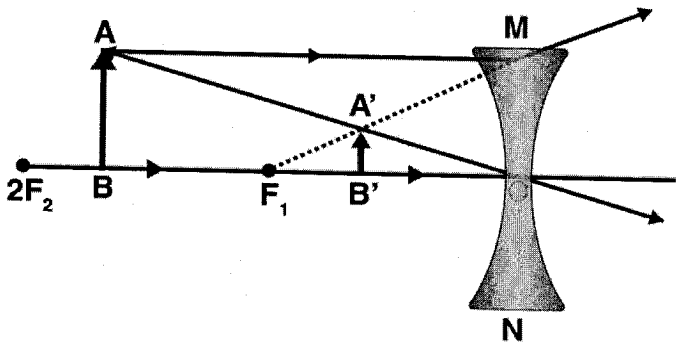
(iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

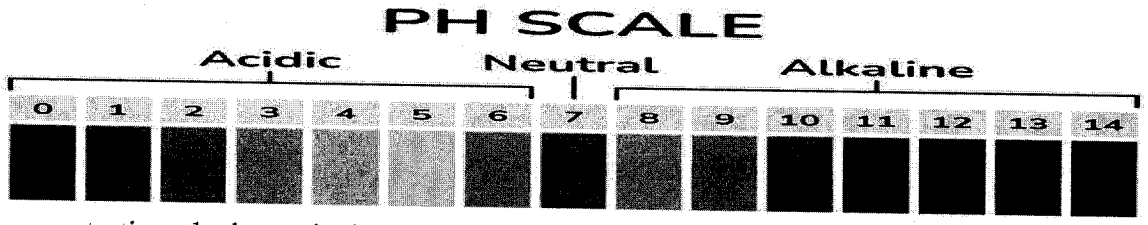
SECTION - A

1.	Define SI unit of power of a lens	1
2.	What is cataract?	1
3.	Concave mirrors are used as shaving mirrors. Give reason	1
4.	The absolute refractive index of ruby is 1.71. Find the speed of light through Ruby, if the speed of light in vacuum is 3×10^8m/s.	1
5.	Give one difference between real and virtual image.	1
6.	The size of an object is 2 cm. The magnification produced by a lens is +3. What is the size of the image?	1
7.	The refractive index of diamond is 2.42. What is the meaning of this statement?	1
8.	The tooth enamel of our teeth is made up of hard mass known as _____.	1
9.	Which chemical substance is used in black and white photography?	1

10.	Find odd one out from the given option. NaCl, KCl, NH_4Cl and KNO_3	1
11.	***Question No.11 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 **Assertion:** The dilution of acids and bases decreases the concentration of H^+ or OH^- ions per unit volume of the solution. **Reason:** For making dilution of acid or base, it must be added to water with constant stirring.	1
12.	Which one of these correctly represent the order with respect to the acidic strength? (a) Acetic Acid < Water < Hydrochloric Acid (b) Hydrochloric Acid < Water < Acetic Acid (c) Water < Acetic Acid < Hydrochloric Acid (d)Hydrochloric Acid < Acetic Acid < Water	1
13.	Why does lack of oxygen in muscles often lead to cramps among cricketers?	1
14.	If salivary amylase is lacking in the saliva, which event in the mouth cavity will be affected?	1
15.	What will happen if mucus is not secreted by the gastric glands?	1
16.	**Assertion:** Asexual reproduction is a primitive type of reproduction. **Reason**: Asexual reproduction involves only mitotic cell division. a) Both Assertion and Reason are correct and reason is the correct explanation for assertion. b) Both Assertion and Reason are correct and reason is not the correct explanation for assertion. c) Assertion is true but Reason is false. d) Both Assertion and Reason are false.	1
17.	Read the following passage and answer the questions given below. Eye is a natural optical device by which human beings could see objects around them. It forms an inverted, real image on a light sensitive surface. It works on the phenomenon of refraction of light through a natural convex lens. However, Meena was not able to see clearly the words written on the blackboard placed at a distance of about 3m from her. Her mother discussed the same with the doctor. The doctor explained to her about this defect of vision and its correction.	

	(i) The least distance up to which a person can see clearly is ---------- (a) 25cm (b) 50cm (c) 15cm (d) 35cm	1
	(ii) The diameter of the eyeball of a normal human eye is ---------- (a) 4.3cm (b) 3.3cm (c) 2.3cm (d) 1.3cm	1
	(iii) The defective eye of a person has focal length - 0.5m. The power of the lens will be ------ a) + 2D b) - 2D c) + 5D d) - 5D	1
	(iv) The ability of human eye to adjust its focal length to see far and nearby objects clearly is called---------- a) Least distance of distinct vision b) Power of accommodation c) Persistence of vision d) Defective vision	1
	(v) The type of defect Meena is suffering from is ---------- a) Presbyopia b) Hypermetropia c) Myopia d) Malnutrition	1
18.	Read the following passage and answer the questions given below  If rays parallel to the principal axis fall on a thin lens they will be diverged away from the principal focus of a concave lens. Thin lens is those whose diameter is small compared to the radii of curvature	

	of two thin lenses. To determine the image position, we have to consider minimum two rays as shown in the figure.	
	(i) How will the image formed by convex lens be affected if the upper half of the lens is wrapped with black paper a) No effect b) Brightness of image will be reduced c) Upper half of the image will be absent d) Image turns black	1
	(ii) Convex lens and concave lens are respectively known as a) Converging and reflecting lenses b) Diverging and converging lenses c) Converging and diverging lenses d) Reflecting and converging lenses	1
	(iii) Two thin lenses of power +3.5 D and -2.5 D are placed in contact. Then the power and focal length of the combination of lenses is---------- a) +1D, +100cm b) -1D, -200cm c) +6 D, 200cm d) -6 D, -100cm	1
	(iv) The uses of concave lens and convex lens respectively are---------- a) To correct hypermetropia and myopia b) To correct myopia and hypermetropia c) To correct cataract and astigmatism d) To correct astigmatism and cataract	1
	(v) Concave lens always forms ----------image a) Real image b) No image c) Blurred image d) Virtual image	1

19.	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 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 and acid rain . 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.	
	(i) What is the pH range that must be maintained in our blood system? (a) 6-7 (b)7-7.8 (c)8-9 (d)12-14	1
	(ii) Which acid is present in the animal self-defense system? (a) Hydrochloric acid (b)Sulphuric acid (c)Methanoic acid (d)Ethanoic acid	1
	(iii) Which chemical substance is suitable to neutralize the acidic soil? (a) Water (b) Chloroform (c)Chalk powder (d) vinegar solution	1
	(iv) The rain becomes acid rain when the value of pH falls below- (a)7.8 (b)8.5 (c)11.5 (d)5.6	1
	(v) Which chemical substance is needed to get relief from acidity? (a)NaOH (b) $Ca(OH)_2$ (c) $ZnCl_2$ (d)$Mg(OH)_2$	1
20.	In a general sense reproduction is one of the most important concepts in biology: it means making a copy, a likeness, and thereby providing for the continued existence of species. Although reproduction is often considered solely in terms of the production of offspring in animals and plants, the more general meaning has far greater significance to living organisms. To appreciate this fact, the origin of life and the evolution of organisms must be considered. One of the first characteristics of life that emerged in primeval times must have been the ability of some primitive chemical system to make copies of itself.	
	(i) During favourable conditions, Amoeba reproduces by a) Multiple Fission b) Binary Fission c) Budding d) Fragmentation	1

	(ii) A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that a) They reproduce asexually b) They are all unicellular c) They reproduce sexually d) They are multicellular	1
	(iii) Bryophyllum can be propagated vegetatively by the a) Stem b) Root c) Leaf d) Flower	1
	(iv) Spirogyra reproduce by a) Budding b) Fragmentation c) Regeneration d) Spore Formation	1
	(v) Plants like banana, rose, jasmine have lost the capacity to produce a) Seeds b) Buds c) Flower d) Roots	1
	Section - B	
21.	Draw a ray diagram showing the path of light ray travelling through a rectangular glass slab and label its parts.	2
22.	Write the chemical formula for POP? Write one use of POP.	2
23.	$CuO + H_2 \rightarrow Cu + H_2O$ In the above redox reaction find oxidizing and reducing agent.	2
24.	Write equation for the reaction of marble chips with Sulphuric acid? List one observation.	2
25.	Why is small intestine in herbivores longer than in carnivores?	2
26.	Differentiate between autotrophs and heterotrophs and give one example of each.	2
27.	Describe "double circulation" in human beings.	3
28.	At what distance should an object be placed from a convex lens of focal length 18 cm to obtain an image at 24 cm from it on the other side? Also draw the ray diagram to show the formation of this image. **Or** An object 5.0 cm in length is placed at a distance of 20 cm in front of a convex mirror with a radius of curvature of 30 cm. Find the position of the image formed. Also draw a neat ray diagram to show the image formation by a convex mirror when the object is placed anywhere between infinity and pole of the mirror.	3
29.	(i)What is decomposition reaction? (ii)What happens when ferrous sulphate crystal undergoes thermal decomposition reaction? Write the chemical equation.	3
30.	(a)You have two solutions, A and B. The pH of solution A is 6 and pH of solution B is 8. (i)Which solution has more hydrogen ion concentration?	3

	(ii)Which of this acidic and which one is basic? (ii) Why does an aqueous solution of an acid conduct electricity **Or** (b)(i) What is chloralkali process? (ii) Which gas is liberated at anode and cathode and write overall reaction?	
31.	Mention the major events during photosynthesis	3
32.	Draw a flow chart to show the breakdown of glucose by various pathways. **Or** Draw a diagram of human respiratory system and label –Nasal cavity, trachea, lungs, diaphragm and alveolar sac on it.	3
33.	a) What do you mean by myopia? b) What are its causes c) Name the lens used to correct this defect of vision. d) Draw the respective ray diagrams for defective and corrective vision **Or** With the help of a neat labeled diagram, explain the structure of normal human eye that enables a person to see the objects clearly.	5
34.	a) (i)What is a redox reaction? (ii)Find oxidizing, reducing, substance oxidized and reduced in the following reactions (1)$Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$ (2)$MnO_2 + 4HCl \rightarrow MnCl_2 + Cl_2 + 2H_2O$ **Or** (b) (i) What is a rust? Give its formula. (ii) What is rancidity? Give two points to prevent rancidity.	5
35.	Write three types of blood vessels. Give one important feature of each. **Or** Draw a neat diagram of the human excretory system and label following parts: (i) Urethra (ii) Kidney (iii) Ureter (iv) Urinary bladder	5
******END OF THE QUESTION PAPER******		