KENDRIYA VIDYALAYA SANGATHAN GURUGRAM REGION
PRE-BOARD EXAMINATION 2025-26

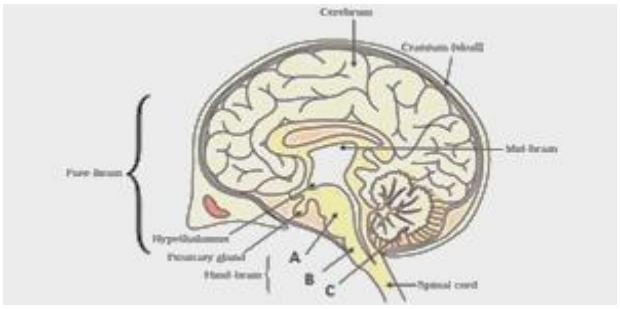
CLASS :10 **Max. Marks: 80**

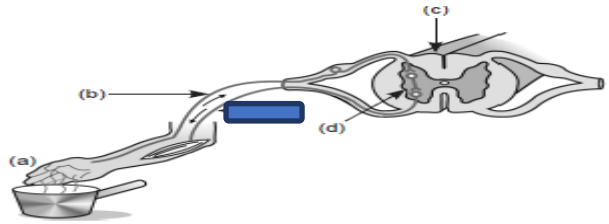
SUBJECT: SCIENCE (086) **Time Allowed: 3 hours**

General Instructions:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.

(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.

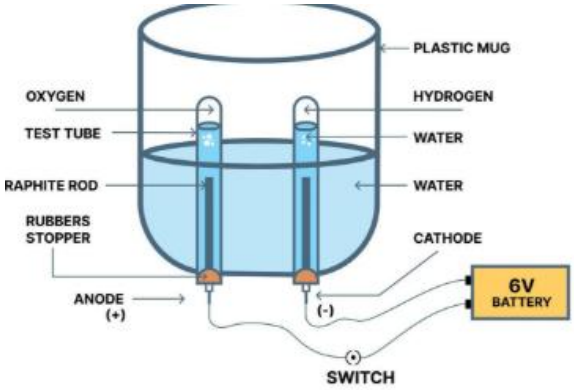
	SECTION-A	**Marks**
1	Which of the following is the correct pathway of air in the human respiratory system? A. Nostrils → Larynx → Pharynx → Trachea → Lungs B. Nostrils → Pharynx → Larynx → Trachea → Lungs C. Nostrils → Trachea → Larynx → Pharynx → Lungs D. Nostrils → Lungs → Pharynx → Trachea → Larynx	1
2	If a tall pea plant is crossed with a pure dwarf pea plant then, what percentage of F1 and F2 generation respectively will be tall? (a) 25%, 25% (b) 50%, 50% (c) 75%,100% (d) 100%, 75%	1
3	The parts (A,B&C) of Hindbrain are:  (a) A-Pons , B- Cerebellum, C- Medulla (b) A- Pons , B- Medulla, C- Cerebellum (c) A- Medulla , B- Pons , C- Cerebellum (d) A- Cerebellum , B- Pons, C- Medulla	1
4	In a bisexual flower, male gametes are present in- a) Anther b) filament c) ovary d) stigma	1
5	The maleness of a child is determined by	1

	(a) the X chromosome in the zygote (b) the Y chromosome in zygote (c) the cytoplasm of germ cell which determines the sex (d) sex is determined by chance	
	6 and 7 are Assertion - Reasoning based questions. These 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	
6	Assertion (A): Sex of a child is determined by the mother. Reason (R): The ovum can contribute either X or Y chromosome.	1
7	Assertion (A): Energy is used during the process of respiration. Reason (R): Respiration stores energy in the form of ATP.	1
8	Name the substances other than water, that are reabsorbed during urine formation. What are the two parameters that decide the amount of water that is reabsorbed in the kidney? **Or** Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds?	2
9	Explain the role of bile juice in digestion.	2
10	A lot of waste is generated in neighbourhood. However, almost all of it is biodegradable. What impact will it have on the environment or human health?	2
11	(i) Identify the any two partsfrom (a) to (d) in the following diagram.  (ii)What is the term given to the sequence of events occurring in the diagram?	2
12	The digestion of food in the human alimentary canal is a complex process. State the enzymes/Salts present in the following and mention their function in the process of digestion: i) Saliva ii) Bile juice iii) Pancreatic juice	3
13	What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem?	3

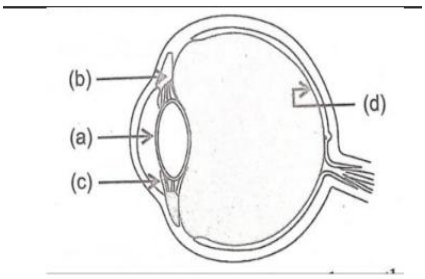
14	*Read the following and answer the following questions:-* Mendel conducted hybridization experiments on pea plants and observed that certain traits appeared in the first generation, while others reappeared in the second generation. When he crossed a pure tall plant with a pure dwarf plant, all offspring in the F1 generation were tall. But in the F2 generation, the dwarf trait reappeared. Based on this observation, answer the following: (a) What kind of trait is the dwarf trait – dominant or recessive? (b) What is the genotypic ratio of the F2 generation? (c) Name the law of inheritance that explains the disappearance and reappearance of a trait. (d) Why did all plants in the F1 generation appear tall? **Or** In one of his experiments with pea plants Mendel observed that when a pure tall pea plant is crossed with a pure dwarf pea plant, in the first generation, F_1 only tall plants appear. (a) What happens to the traits of the dwarf plants in this case? (b) When the F, generation plants were self- fertilised, he observed that in the plants of second generation, F_2 both tall plants and dwarf plants were present. Why it happened? Explain briefly.	4
15	Attempt either option A or B. **A** (i) Name the part performing following functions in human male reproductive system -: (a) Carries sperm (b) Production of male gametes (c) Whose secretion makes the transport of sperms easier (d) Provide suitable temperature for sperm formation (ii) Write any two characteristics of sperms. (iii) What are surgical contraceptive methods? Give the side effect caused by this procedure. **Or** **B** (i) Name the mode of reproduction of the following organisms and state the important feature of each mode: (a) Planaria (b) Hydra (c) Rhizopus (ii) We can develop new plants from the leaves of Bryophyllum. Comment. (iii) List two advantages of vegetative propagation over other modes of reproduction.	5
	SECTION- B	**Marks**
16	Which among the following statement(s) is(are) true? Exposure of silver chloride to sunlight for a long duration turns grey due to	1

	(i) the formation of silver by decomposition of silver chloride (ii) sublimation of silver chloride (iii) decomposition of chlorine gas from silver chloride (iv) oxidation of silver chloride (a) (i) only (b) (i) and (iii) (c) (ii) and (iii) (d) (iv) only	
17	Given below is the balanced chemical equation for the thermal decomposition of lead nitrate. $2Pb(NO_3)_2 \rightarrow \mathbf{2}PbO + \mathbf{4}NO_2 + O_2$ Which of the following information do the coefficients of PbO and NO_2 in the equation (2 and 4 respectively) tell us? (a) The ratio of the number of moles produced of the two substances. (b) The ratio of the number of atoms in the two substances. (c) The ratio of the mass produced of the two substances. (d) The ratio of the densities of the two substances.	1
18	A shiny brown coloured element ′X′ on heating in air becomes black in colour. Name the element ′X′ and the black coloured compound formed. (a) Silver and silver oxide. (b) Calcium and Calcium oxide. (c) Copper and Copper oxide. (d) Aluminium and Aluminium oxide.	1
19	A compound X of sodium is used in Soda acid fire extinguisher. This compound can also be used, a) in removing permanent hardness of water. b) as an antacid c) as a cleaning agent d) In the manufacturing of soap.	1
20	What happens when a solution of an acid is mixed with a solution of a base in a test tube? (i) The temperature of the solution increases (ii) The temperature of the solution decreases (iii) The temperature of the solution remains the same	1

	(iv) Salt formation takes place. (a) (i) only (b) (i) and (iii) (c) (ii) and (iii) (d) (i) and (iv)	
21	The sample of soil from a particular place was tested for its pH value. It came out to be 5. Which one of the following should be added to the soil to make it suitable for the plant growth? i) Calcium chloride ii) Calcium Hydroxide iii) Calcium oxide Choose the correct option: a. Both (i) and (ii) b. Both (ii) and (iii) c. Only (i) d. Only (iii)	1
22	Element X reacts with element Y to form a compound Z. During the formation of compound Z,atoms of X lose one electron each whereas atoms of Y gain one electron each. Which of the following properties is not shown by compound Z? A. High melting point B. Low melting point C. Occurrence as solid D. Conduction of electricity in molten state	1
23	Assertion (A): Esterification is a process in which a sweet smelling substance is produced. Reason (R): When esters react with sodium hydroxide, an alcohol and sodium salt of carboxylic acid are obtained. (a) Both (A) and (R) are true and (R) is the correct explanation of the assertion (A). (b) Both (A) and (R) are true, but (R) is not the correct explanation of the assertion (A). (c) (A) is true, but (R) is false. (d) (A) is false, but (R) is true.	1
24	The electronic configuration of two elements X and Y are given below X:2,7 Y: 2,8,1	2

	a) Show the formation of bond between X and Y by electron transfer. b) Mention the type of bond formed between X and Y. c) Will this compound dissolve in kerosene or petrol?	
25	A teacher conducting the electrolysis of water. Find out the solution of the following doubt arise by the students:-  i)why does the amount of hydrogen is double than the amount of oxygen? ii)What is the role of dil. sulphuric acid in this experiment? iii)Name the type of reaction. **Or** Balance the following chemical equation and identify the type of chemical reaction: $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$	3
26	Give reasons (a) Platinum, gold and silver are used to make jewellery. (b) Sodium, potassium and lithium are stored under oil. (c) Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.	3
27	Silver articles become black after some time when exposed to air. This is because it reacts with sulphur in the air to form a coating of silver sulphide. Copper reacts with moist carbon dioxide in the air and slowly loses its shiny brown surface and gains a green coat. This green substance is copper carbonate. Iron when exposed to moist air for a long time acquires a coating of a brown flaky substance called rust. i)Write a chemical reaction occur during the rusting of iron. ii)Give two methods to prevent the corrosion of metals. iii)What do you mean by the alloy? Give one example. iv)What is meant by Galvanization?	4

	Or Metals have different physical and chemical properties, which make them useful in various applications. Aluminium is a light, corrosion-resistant metal used in aircraft. Sodium and potassium are highly reactive metals stored under kerosene. Iron reacts with moisture and oxygen to form rust, which weakens iron articles. Copper is an excellent conductor of electricity. Answer the following questions: a) Why is aluminium used in making aircraft bodies? b) Why are sodium and potassium stored under kerosene? c) Why do iron articles need to be painted frequently? d) Why is copper preferred for electrical wiring?	
28	Explain the following with suitable reactions: a) Why does carbon form covalent compounds? b) Explain the formation of methane molecule with electron dot structure. c) What is homologous series? Give an example. d) What happens when ethanol is heated with alkaline $KMnO_4$? e) What is saponification? **Or** (a) Answer the following questions in one sentence or one word: (i) What type of organic compounds shows substitution reaction? (ii) How will you convert ethanol into unsaturated hydrocarbon? (iii) How is carboxylic acid different from mineral acids? (b) With the help of electron dot representation explain the formation of O_2 molecule.	5
	SECTION-C	**Marks**
29	Let us consider that because of the flow of the current flowing through a metallic wire if the temperature of the entire system increases. What will happen from the following options? (a) Potential difference (V) increases (b) Resistance (R) decreases (c) Potential difference (V) decreases (d) V and R remains the same	1
30	An electric iron of 1kW is operated at 220V. In this case, the fuse used must be (a) 5A fuse	1

	(b) 1A fuse (c) 4A fuse (d) 3A fuse	
31	The magnetic field inside a long straight solenoid-carrying current (a) is zero (b) decreases as we move towards its end (c) increases as we move towards its end (d) is the same at all points	1
32	Assertion: Electric appliances with metallic body have three connections, whereas an electric bulb has two pin connections. Reason: Three pin connections reduce heating of connecting wires. (a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true. (e) Both A and R are false	1
33	Assertion: The appliances are connected in parallel. Reason: In parallel appliances work at the same current. a) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A). (c) Assertion (A) is true and Reason (R) is false. (d) Assertion (A) is false and Reason (R) is true.	1
34	Name the four parts labelled as a,b,c and d in a given diagram and write their functions.  **Or** Why do stars twinkle but planets do not?	2

35	The linear magnification produced by a spherical mirror is +3. (a) Analyse this value and state the type of mirror used and position of the object with respect to the pole of the mirror. (b) Draw a ray diagram to show the formation of image in this case. **Or** An object of 4 cm in size is placed at 25 cm in front of a concave mirror of focal length 15cm. At what distance from the mirror a screen should be placed to obtain a sharp image? Find the nature and the size of image.	3
36	A student holding a mirror in his hand, directed the reflecting surface of the mirror towards the Sun. He then directed the reflected light on to a sheet of paper held close to the mirror. (i) What should he do to burn the paper? (ii) Which type of mirror does he have? (iii) Will he be able to determine the approximate value of focal length of this mirror from this activity? Give reason and draw ray diagram to justify your answer in this case.	3
37	A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is: (i) pushed into the coil (ii) withdrawn from inside the coil (iii) held stationary inside the coil	3
38	Answer the questions that follow on the basis of your understanding of the following paragraph and the related studied concepts. A taxi driver was driving his taxi on road. Suddenly in his rear-view mirror, he saw an over-speeding car coming from behind as if the he had lost his control over the car. The taxi driver immediately turned his car towards the side of the road and stopped. Soon after that the speeding car collided with another car ahead. and met with an accident. The taxi driver came out of the car and went towards the accident site. He took the injured person to the nearby hospital. a) What type of mirror is used for rear-view in the car? Mention the nature of the image formed. b) Name the mirror that can form both real and virtual image. Also draw the ray diagram of this mirror when the object is placed between principal focus and pole of the mirror. c) Plane mirrors are not used as rear-view mirrors in vehicles. Give reason **Or** A student places an object 20 cm in front of a converging mirror (concave) of focal length 10	4

	cm. She obtains a sharp image on the screen. a) Find the position of the image. b) Is the image real or virtual? Justify. c) Draw a ray diagram for the above situation. d) State one use of a concave mirror based on the image formed in this case.	
39	An electric bulb is rated 220 V and 100 W. a) Find the resistance of the bulb. b) Calculate the energy consumed by 5 such bulbs in 5 hours. c) A wire of resistance 10 ohms is connected to a 12 V battery. Calculate the heat produced in 2 minutes. **Or** a) State difference between the wire used in the element of an electric heater and in a fuse wire. b) How much current will an electric bulb draw from 220 V source if their resistance of the bulb is 1200 ohm? If in place of bulb, a heater of resistance 100 Ohm is connected to the source, calculate the current drawn by it. c) What happens to resistance of a conductor when its area of cross-section is increased.	5