KENDRIYA VIDYALAYA SANGATHAN, JAMMU REGION

PRE-BOARD 1 EXAMINATION 2025-26

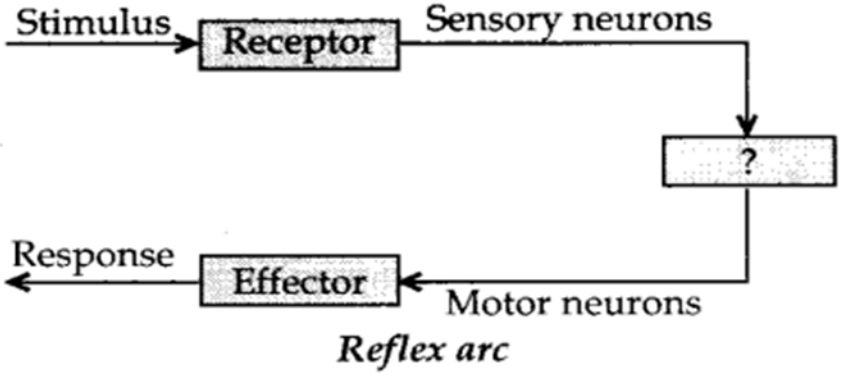
CLASS-X **Maximum Marks: 80**

SUBJECT-SCIENCE **Time allowed: 3 Hours**

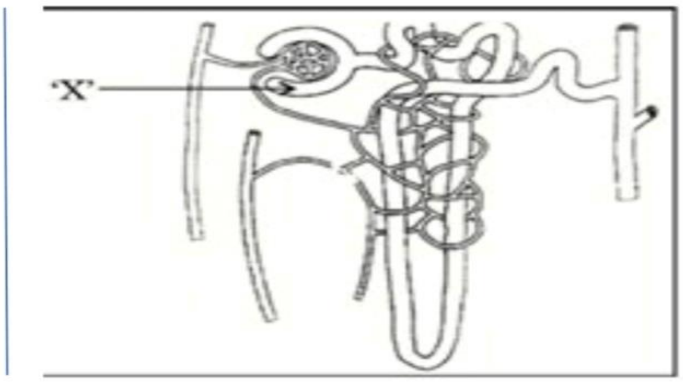
General Instructions:

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

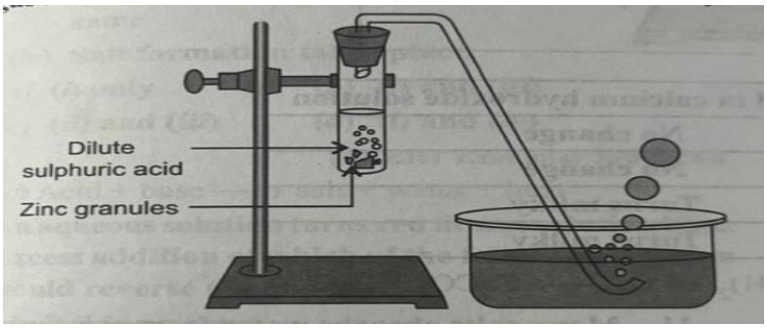
(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

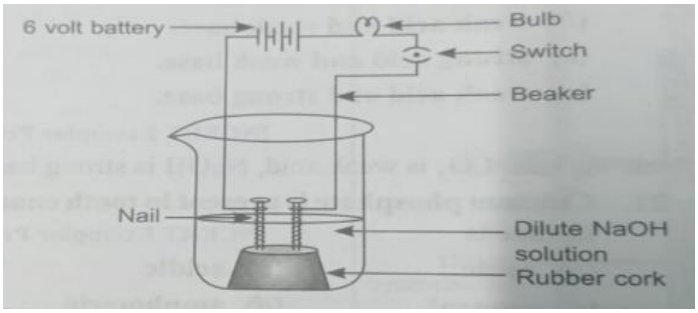
Q.No.	Questions	Marks
	SECTION A	
1	Lack of oxygen in muscles often leads to cramps among cricketers. This results due to a) Conversion of pyruvate to ethanol (b) Conversion of pyruvate to glucose (c) conversion of glucose to pyruvate (d) Conversion of pyruvate to lactic acid	1
2	 *Reflex arc* Identify the missing term. (a) Spinal cord (b) Brain (c) Cranial nerves (d) Relay nerves	1

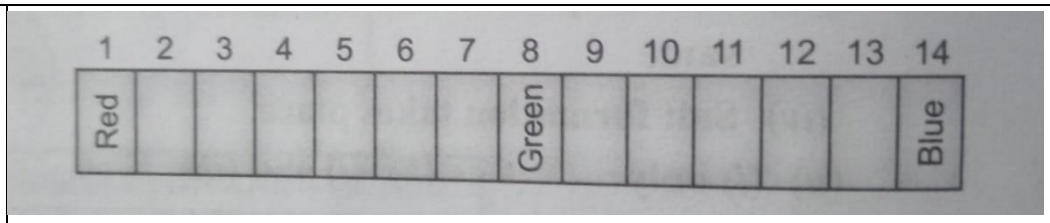
3	Nephron is the functional unit of kidney. Which part of it allows the selective reabsorption of useful substances like glucose, amino acids, salts and water into the blood capillaries? (a) Tubule (b) Glomerulus (c) Bowman's capsule (d) Ureter	1
4	The plant hormone whose concentration stimulates the cells to grow longer on the side of the shoot which is away from light is: (a) Cytokinins (b) Gibberellins (c) Adrenaline (d) Auxins	1
5	Independent inheritance of two separate traits, shape and colour of seeds in Mendel's cross on pea plants resulted in a observable ratio of: (a) 3 : 1 (b) 9 :3 :3 : 1 (c) 1 : 1 (d) 9 :4 :2 : 1	1
6	First link in any food chain is usually green plants because (a) they are widely distributed (b) they are fixed at one place in the soil (c) they alone have the capacity to synthesise food using sunlight (d) there are more herbivores than carnivores	1
7	In the given food chain if the amount of energy at the fourth trophic level is 4 kJ, what will be the energy available at the producer level? Grass → Grasshopper → Frog → Snake (a)4 kJ (b)40 kJ (c)400 kJ (d)4000 Kj	1
	Direction - In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following: (a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion. (b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion. (c) Assertion is true but the Reason is false.	

	(d) The statement of the Assertion is false but the Reason is true.	
8	Assertion: Height in pea plants is controlled by efficiency of enzymes and is thus genetically controlled. Reason: Cellular DNA is the information source for making proteins in the cell.	1
9	Assertion: Vegetarian food habit is more beneficial to organisms. Reason: Only 10% energy is available as food from one trophic level to next.	1
10	In single celled organisms diffusion is sufficient to meet all their requirements of food, exchange of gases or removal of wastes but it is not in case of multicellular organisms. Explain the reason for this difference. Or What are the methods used by plants to get rid of excretory products?	2
11	Use of several pesticides which results in excessive accumulation of pesticides in rivers or ponds is a matter of deep concern. Justify this statement.	2
12	(i)Identify 'X' in the given diagram of a human nephron and explain  its role in the formation of urine. (ii) Explain why some of the substances are selectively reabsorbed from the initial filtrate as it flows along the tubular part of nephron.	2
13	(a) Name the glands that secrete: (i) Adrenaline (ii) Thyroxin (b) Explain with example how the timing and amount of hormone released are regulated in the human body.	3
14	If we cross-bred tall (dominant)pea plant with pure-breed dwarf (recessive) pea plant, we will get plants of F1 generation. If we now self-cross the pea plant of F1 generation, we obtain pea plants of F2 generation. (a) What do the plants of F1 generation look like? (b) State the ratio of tall plants to dwarf plants in F2 generation.	3

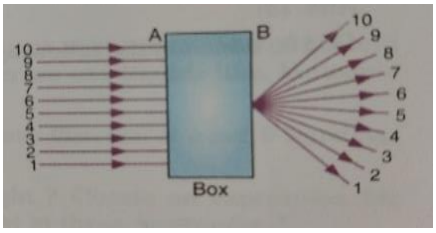
	(c) State the type of plants not found in F 1 generation but appeared in F2 generation. Write the reason for the same.	
15	Read the source below and answer the questions that follow: During a science lecture, the teacher explained how excretion removes waste materials from the body. She described the role of nephrons in the kidney and how urine is formed. She also mentioned how plants remove waste through transpiration, vacuoles, and leaf shedding. Attempt either subpart c or d (a) Which one of the following shows the correct sequence of the path of urine in the human excretory system? (i)Kidney → Urinary bladder → Ureter → Urethra (ii)Kidney → Urinary bladder → Urethra → Ureter (iii)Kidney → Urethra → Urinary bladder → Ureter (iv)Kidney → Ureter → Urinary bladder → Urethra (b) The major excretory product in human beings is: (i) Urea (ii) Ammonia (iii) Uric acid (iv) Ammonium chloride (c) Name two gaseous waste products released during photosynthesis & respiration. OR (d) What is the role of transpiration in plant excretion?	4
16	Attempt option either 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)What happens when: (a)Leaves of Bryophyllum fall on the soil?	5

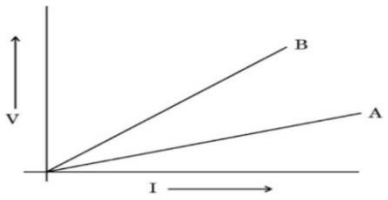
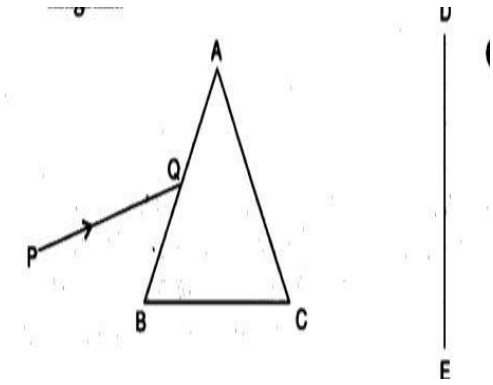
	(b)Planaria is cut into many pieces? (c)Sporangia of Rhizopus on maturation liberate spores? Mention the modes of reproduction in each of the above three cases. (ii) Write the changes that occur in a flower once the fertilisation has taken place.	
	SECTION B	
17	Which of the following is a thermal decomposition reaction? (a) $2H_2O \rightarrow 2H2 + O2$ (b) $2AgCl \rightarrow 2Ag + Cl_2$ (c) $ZnCO3 \rightarrow ZnO + CO_2$ (d) $H2(g) + Cl_2(g) \rightarrow 2HCl(g)$	1
18	The metals obtained from their molten chlorides by the process of electrolytic reduction are: (a) Gold and silver (b) Calcium and magnesium (c)Aluminium and silver (d) Sodium and iron	1
19	Study the diagram given below and identify the gas formed in the reaction.  (a) Carbon dioxide which extinguishes the burning candle. (b) Oxygen due to which the candle burns more brightly. (c) Sulphur dioxide which produces a suffocating smell. (d) Hydrogen which while burning produces a popping sound.	1
20	Three beakers labelled as A, B and C each containing 25 ml of water were taken. A small amount of NaOH, anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solution contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement(s) is (are) correct? (i) In beakers A and B, exothermic process has occurred.	1

	(ii) In beakers A and B, endothermic process has occurred. (iii) In beaker C exothermic process has occurred. (iv) In beaker C endothermic process has occurred. (a) (i) only (b) (ii) only (c) (i) and (iv) (d) (iv), (ii) and (iii)	
21	In an attempt to demonstrate electrical conductivity through an electrolyte, the following apparatus was set up.  Which among the following statement(s) is (are) correct? (i) Bulb will not glow because electrolyte is not acidic. (ii) Bulb will glow because NaOH is a strong base and furnishes ions for conduction. (iii) Bulb will not glow because circuit is incomplete. (iv) Bulb will not glow because it depends upon the type of electrolytic solution. (a) (i) and (iii) (b) (ii) and (iv) (c)(ii) only (d) (iv) only	1
22	Electrolysis of water is a decomposition reaction. The molar ratio of hydrogen and oxygen gases liberated during electrolysis of water is (a) 1:1 (b) 2:1 (c) 4:1 (d) 1:2	1
23	Equal volumes of hydrochloric acid and sodium hydroxide solutions of same concentration are mixed and the pH of the resulting solution is checked with a pH paper. What would be the colour obtained? (You may use colour guide given in figure)	1

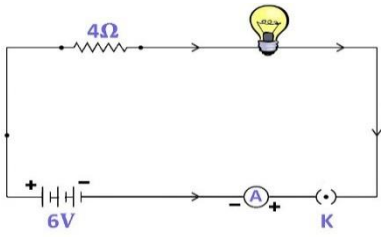
	 (a) Red (b) Yellow (c) Yellowish green (d) Blue	
	The following question consists of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true	
24	**Assertion**: In a homologous series of alcohols, the formula for the second member is C_2H_5OH and the third member is C_3H_7OH. **Reason**: The difference between the molecular masses of the two consecutive members of a homologous series is 144.	1
25	Cinnabar is an ore of metal X . This ore when heated in air, is first converted into its oxide and then reduced to metal 'X' on further heating. Identify metal "X" and write formula of ore. Write chemical equations for the reaction involved. Or An element A reacts with water to form a compound B used in whitewashing. The compound B on heating forms an oxide C which gives back B on treatment with water. Identify A, B and C and give the reactions involved in conversion of element A to compound B.	2

26	Five solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11, 7 and 9 respectively. Which solution is (a) neutral? (b) strongly alkaline? (c) strongly acidic? (d) weakly acidic? (e) weakly alkaline? Arrange the pH in increasing order of hydrogen-ion concentration.	3
27	a) Generally, when metals are treated with mineral acids, hydrogen gas is liberated, but when metals are treated with HNO3, hydrogen is not liberated. Why? b) Which two metals can release H2 gas when reacts with very dilute HNO3? c) Arrange the following metals in decreasing order of reactivity:**. Cu, Ca, Mg, Na, Zn	3
28	Read the given passage and answer the questions based on passage and related studied concepts. Salts are formed by reactions of acids and bases, strong acids react with strong bases to form neutral salts. Weak acids react with strong bases to form basic salts whose aqueous solution turned red litmus blue, phenolphthalein pink and universal indicator blue. Acidic salts are formed by strong acids and weak bases. Na_2CO_3 and NaHCO3 are salts of NaOH (strong base) and H_2CO_3 (Carbonic acid) weak acid and are basic in nature. Electrolysis of brine solution gives caustic soda (NaOH), H_2 gas and Cl_2. Bleaching powder ($CaOCl_2$) is prepared when slaked lime reacts with dry chlorine gas used as disinfectant, washing soda is used to remove permanent hardness of water. Crystalline salts are hydrated and lose water of crystallisation on heating, may change colour and become amorphous (powdery). Gypsum on heating at 373K gives Plaster of Paris, used in making chalk, plastering fractured bones. NaHCO3 is baking soda used in making crisp pakora and as antacid.	

	(a) Which of the following is composition of baking powder? (i) Na_2CO_3 + tartaric acid (ii) NaHCO3 + tartaric acid (iii) Alum + tartaric acid (iv) NaHCO3 + citric acid. (b) A visually challenged student has to identify acid and base present in two test tubes. The indicator he will use will be (i) blue litmus (ii) clove oil (iii) red cabbage extract (iv) Hibiscus extract (c) Write any two uses of washing soda. Or (c) For dilution of an acid, acid is added to water and not water into acid. Give reason.	1 1 2
29	(i) Draw two isomeric structures of Butene (C4H8). (ii) Write chemical equation to show what happens when ethanol : (a) burns in oxygen/air. (b) is heated at 443 K in excess conc. H2SO4. (c) reacts with acidified potassium dichromate.	5
	SECTION C	
30	Which of the following statements is correct regarding the propagation of light of different colours of white light in air? (a) Red light moves fastest (b) Blue light moves faster than green light (c) All the colours of the white light move with the same speed (d) Yellow light moves with the mean speed as that of the red and the violet light	1
31	A beam of light is incident through the holes on side A and emerges out of the holes on the other face of the box. Which of the following could be inside the box? (a) Rectangular glass slab (b) a convex lens (c) a concave lens (d) a prism 	1
32	Assertion: Dentists use concave mirror to see inside the mouth. Reason: Image formed by a concave mirror is virtual and highly	1

	magnified.	
33	Draw ray diagrams to show the nature, position and relative size of the image formed by a convex mirror when the object is placed (i) at infinity and (ii) between infinity and pole P of the mirror.	2
34	Attempt either option A or B A. Two lamps, one rated 100 W at 220 V, and the other 60 W at 220 V, are connected in parallel to electric mains supply. What current is drawn from the line if the supply voltage is 220 V. OR B. V-I graph for two wires A and B are shown in the figure. If both wires are of same length and same thickness, which of the two is made of a material of high resistivity? Give justification for your answer. 	2
35	A narrow beam PQ of white light is passing through a glass prism ABC as shown in the diagram. Trace it on your answer sheet and show the path of the emergent beam as observed on the screen DE. (a) Write the name and cause of the phenomenon observed. (b) Where else in nature is this phenomenon observed?. (c) Based on this observation, state the conclusion which can be drawn about the constituents of white light. 	3
36	(a) Write Joule's law of heating. (b) Why are the conductors of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal?	3
37	What happens to the force acting on current carrying conductor placed in magnetic field when: (a) Direction of magnetic field is reversed without changing the direction of current. (b) Direction of the current is reversed without changing the direction of magnetic field.	3

<table>
<tr><td></td><td>(c) Direction of both the current and the magnetic field is reversed.</td><td></td></tr>
<tr><td>38</td><td>Analyse the following observation table showing variation of image distance (v) with object distance (u) in case of a convex lens and answer the questions that follow, without doing any calculations:
Attempt either subpart c or d
<table><tr><th>S.No.</th><th>Object distance (u)</th><th>Image distance (v)</th></tr><tr><td>1</td><td>-90 cm</td><td>+ 18 cm</td></tr><tr><td>2</td><td>-60 cm</td><td>+ 20 cm</td></tr><tr><td>3</td><td>-30 cm</td><td>+ 30 cm</td></tr><tr><td>4</td><td>-20 cm</td><td>+60 cm</td></tr><tr><td>5</td><td>-18 cm</td><td>+ 90 cm</td></tr><tr><td>6</td><td>-10 cm</td><td>+100 cm</td></tr></table>(a) State the lens formula.
(b) Write the serial number of that observation which is not correct. How did you arrive at this conclusion?
(c) Take an appropriate scale to draw ray diagram for the observation at S.No.2.
Or
(d) Write any two uses of convex lens.</td><td>4</td></tr>
<tr><td>39</td><td>Attempt either option A or B
A.
(a) Define electric power. Express it in terms of potential difference V and resistance R.
(b) An electrical fuse is rated at 2A. What is meant by this statement?
(c) An electric iron of 1 kW is operated at 220 V. Find which of the following fuses that respectively rated at 1 A, 3 A and 5 A can be used in it.

B. Or
An electric lamp of resistance 20 ohm and a conductor of resistance 4 ohm are connected to a 6V battery as shown in the circuit.
Calculate
(a) the total resistance of the circuit,
(b) the current through the cicruit,
  </td><td>5</td></tr>
</table>

	(c) the potential difference acrossthe (i) electric lamp and (ii) conductor (d) power of the lamp	