Series P/PB2/1

SET 1

CLASS X PRE-BOARD EXAMINATION – 2025-26

Q.P. Code: 086/2/1

Roll No. | | | | | | | | |

Candidate must write the Q.P. Code on the title page of the answer-book.

- Please check that this question paper contains **10** printed pages.
- Please check that this question paper contains **39** questions.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- **Please write down the serial number of the question in the answer-book before attempting it.**
- 15 minute time has been allotted to read this question paper. The students will read the question paper only and will not write any answer on the answer-book during this period.

SCIENCE

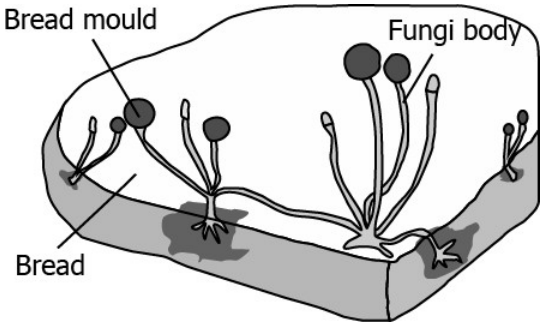
Time allowed : 3 hours *Maximum Marks : 80*

General Instructions:

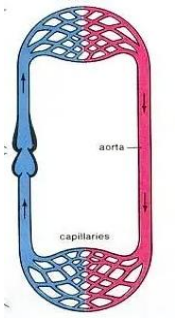
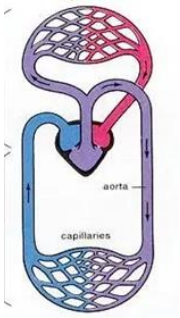
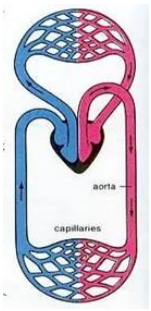
Read the following instructions very carefully and strictly follow them:

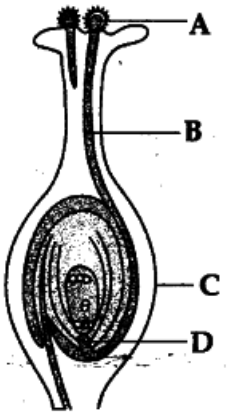
(i) This question paper consists of 39 questions in 3 sections.
Section A is Biology,
Section B is Chemistry and
Section C is Physics.

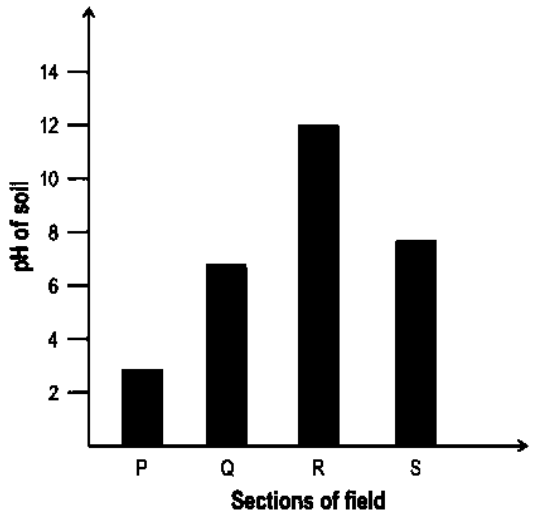
(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

Qn no	SECTION A	MARKS
1	Which step is correct regarding the direction of blood flow in human heart? A. Left atrium → Right ventricle B. Right ventricle → Lungs C. Left ventricle → Vena cava D. Aorta → Right atrium	1
2	The image shows a cotton-like organism grows directly on a moist surface and appears to extract food from it.How does this organism obtain its nutrition?  A. by eating the bread on which it is growing B. by using nutrients from the bread to prepare their own food C. by breaking down the nutrients of bread and then absorbing them D. by allowing other organisms to grow on the bread and then consuming them	1
3	A person has very low basal metabolism, weight gain and lethargy. Which endocrine disorder does this suggest? A. Excess insulin B. Hyperthyroidism C. Hypothyroidism D. Excess adrenaline	1
4	A farmer store his apple seeds long-term to prevent premature germination , a process promoted by hormone **A**. He also treat the harvested, unripe apples with a gaseous hormone **B** to ensure uniform ripening before sale. Identify the pair of hormones **A** and **B** required for this agricultural application. A. A-auxin B-gibberellins B. A- Abscisic acid B-ethylene C. A-cytokinins B-gibberellins D. A- Abscisic acid B-auxin	1
5	The colour of retina of eye is an inherited character. The allele for blue eye is recessive. What are the chances of parents , both have blue eyes to have a child with blue eyes? A. 0% B. 25% C. 75% D. 100%	1
6	Which property of the plastic wrappers is mainly responsible for making it non-ecofriendly ? A. They react quickly with soil nutrients B. They decompose very slowly and persist for long periods C. They enrich the soil with organic matter D. They dissolve easily in rainwater	1

7	In a polluted lake, DDT concentration is 0.02 ppm in water. Which level of the food chain will show the highest concentration? A. Phytoplankton B. Zooplankton C. Small fish D. Fish-eating birds	1
The following two questions consist 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.		
8	Assertion (A) : The amount of ozone in the atmosphere began to drop sharply in the 1980s. Reason (R) : The oxygen atoms combine with molecular oxygen to form ozone.	1
9	Assertion (A): Recessive traits are expressed only in homozygous conditions. Reason (R): Recessive alleles cannot express themselves in the presence of dominant alleles.	1
10	Mr. Farooq visits a doctor complaining of recurrent stomach infections, persistent indigestion, and a feeling of "heaviness" after meals, particularly those rich in meat or pulses. Diagnostic tests confirm that his gastric glands are secreting an extremely low amount of Hydrochloric Acid. (i)Which digestive enzymes would be least functional in Mr. Farooq's stomach due to the low HCl? (ii)The deficiency of HCl secretion by gastric glands causes infections. Justify your answer.	2
11	*Students to attempt either option A or B.* A) "The length of the small intestine in various animals depends on the food they eat." Justify the statement. OR B) Discuss the role of the following secretions in the digestion of food in human beings. i)pancreatic juice ii)bile juice	2
12	Decomposers contribute to soil fertility and stability of the ecosystem. Comment on the above statement.	2
13	An agriculturist crosses a pure red-fruited tomato plant with a pure yellow-fruited variety.He observes that All plants in the F_1 generation produce red fruits.He crossed these new red fruited varieties with yellow fruited variety again and raised 100 second generation plants. Based on this information, answer the following: (i) Work out a cross and write the expected phenotypic ratio of red : yellow fruits in the second generation? (ii) How many plants (approximately) will show each fruit colour in second generation? (iii)Identify the dominant and recessive trait.	3
14	A student is walking barefoot in the school garden when he suddenly steps on a sharp thorn. Instantly, his foot is lifted even before he becomes aware of the pain. (i) What is this quick, automatic and involuntary response called?	3

	(ii) Illustrate this mechanism by drawing a well-labelled diagram which explains the path of the nerve impulses. (iii)How this mechanism is important for animals in which complex neuron network is not well developed?	
15	*Attempt either subpart C(i) or C(ii).* In a classroom activity, students compared circulatory diagrams of a fish, frog, bird, and human. They noticed differences in the number of chambers and direction of blood flow.    A.Fish B.frog C.birds and humanbeings A. Why double circulation is essential for birds and human beings? B. Arrange the organisms—Frog, Fish and Human beings —in increasing order of oxygen efficiency based on heart structure. C.(i) How is it ensured that oxygenated and deoxygenated blood do NOT mix in human heart? OR C.(ii) How does the two-chambered heart of a fish differ, in the amount of oxygen delivered to its tissues ,compared to the delivery achieved by the four-chambered heart of a bird?	4
16	*Attempt either option A or B.* Plants reproduce in different ways to ensure their survival. A. Identify the type of reproduction in the following cases: (i) Sugarcane (ii) Bryophyllum B. Explain how vegetative propagation is advantageous to farmers. C. How do sexually reproducing plants produce variations among their offsprings? D. Why are variations important for a species? Give one reason. OR B) Study the given image and answer the following questions:	5

	 i) Identify the part a)on which pollen grains settle after pollination b) the site of fertilization c)the part which C develops into ii)Identify the part B and write its role in sexually reproducing plants. iii)Write any two changes in a flower after fertilization.	
	SECTION B	
17	The following reaction is used for the preparation of oxygen gas in the laboratory. $2KClO_3$ (s) $\xrightarrow[\text{Catalyst}]{\text{Heat}}$ $2KCl$ (s) + $3O_2$ (g) Which of the following statement(s) is(are) correct about the reaction? A. It is a decomposition reaction and endothermic in nature B. It is a combination reaction C. It is a decomposition reaction and accompanied by release of heat D. It is a photochemical decomposition reaction and exothermic in nature	1
18	Sodium hydrogen carbonate when added to acetic acid evolves a gas. Which of the following statements are true about the gas evolved? (i) It turns lime water milky (ii) It extinguishes a burning splinter (iii) It is used in the manufacture of baking soda (iv) It has a pungent odour A. (i) and (ii) B. (i), (ii) and (iii) C. (ii), (iii) and (iv) D.(i) and (iv)	1
19	In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity,if lead nitrate is not available, which of the following can be used in place of lead nitrate? A. Lead sulphate (insoluble) B. Lead acetate C. Ammonium nitrate D. Potassium sulphate	1
20	Hydrangea plants develop blue or pink flowers depending on the availability of aluminium from the soil. When the soil is acidic, aluminium is more available to the roots, resulting in blue flowers. When the soil is alkaline, the availability of aluminium decreases, resulting in pink flowers. The graph below is of the pH of the soil at different sections of a field.	1



In which section of the field will the flowers on ALL the hydrangea plants definitely be blue in colour and in which section will the flowers on ALL the hydrangea plants definitely be pink in colour?

Option	Blue flowers	Pink flowers
A	Section P and Q	Section R and S
B	Section R and S	Section P and Q
C	Section P, Q and S	Section R
D	Section P	Section R

21 Which salt among the following will give a PH 6.5 in water? 1

A. NaCl
B. KCl
C. NH_4Cl
D. Na_2CO_3

22 After heating a blue crystalline salt **A**, it changes to a white powder, **B**. The white powder is cooled and a few drops of water are added. The substance turns blue again. The change from blue salt **A** to white powder **B** occurs mainly because: 1

A. Water of crystallisation is removed
B. The salt decomposes into copper metal
C. The salt reacts with oxygen in air
D. The salt gets oxidised by heat

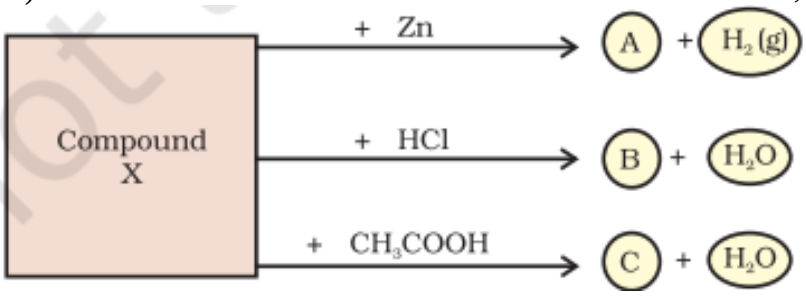
23 Which of the following statements about extraction of mercury is incorrect? 1

A. Cinnabar is roasted in air to form HgO.
B. HgO decomposes on heating to give Hg.
C. Mercury is extracted from its sulphide ore.
D. Cinnabar can be reduced directly by carbon to obtain mercury.

The following two questions consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

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B. Both A and R are true, and R is not the correct explanation of A.
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24 Assertion (A): Animal fats generally contain saturated fatty acids 1
Reason (R):Oils containing saturated fatty acid is good for health.

25	Compound X and aluminium metal are used to join railway tracks. (a)Identify the compound X (b) Name the reaction (c) Write the chemical reaction involved.	2
26	*Attempt either option A or B.* (A)A student heats two different metal oxides A and B and tests each with dil. HCl and NaOH solution. Oxide A reacts only with HCl and forms the corresponding salt and water. Oxide B reacts with both HCl and NaOH and forms salt and water in each case. (i) Which metal oxide could Oxide B be? Write balanced chemical equations for its reactions with dil. HCl and with NaOH. (ii) What chemical property of Oxide B is demonstrated by these reactions? OR (B) i)With the help of electron dot diagrams, illustrate how sodium and chlorine combine to form NaCl . ii) Mention two properties of NaCl that can be explained based on its ionic bonding .Justify your answer.	3
27	Common salt is an important raw material for various chemicals of daily use. State in brief the method of preparation of (i) Sodium hydroxide, and (ii) Sodium hydrogen carbonate from common salt. Write balanced chemical equations for the reactions that occur.	3
28	*Attempt **either A or B. C** is compulsory* Study the given diagram: The compound X is A strong, caustic alkali that is used in making soap bars and synthetic fires. A)Identify the compound **X** . (1 mark) OR B)The probable PH of the compound **X** is (choose the correct answer) A. 5 B. 10 C. 7 D. 6 C)Write the name and chemical formulae of A, B and C.  (3marks)	4
29	*Attempt either option **A or B.*** (A) A compound X (molecular formula, $C_2H_4O_2$) reacts with Na – metal to form a compound Y and evolves a gas which burns with a pop sound. Compound X on treatment with an alcohol A in presence of an acid forms a sweet smelling compound Z (molecular formula, $C_4H_8O_2$). On addition of NaOH to X, it also gives Y and water. i)Identify X, Y, Z and A ii) write down the chemical equations for the reactions involved. OR	5

(B)Study the given table :

PROPERTY	**Compound A**	**Compound B**
Physical State	Solid	gas
Electrical Conductivity	Good conductor	Poor conductor
Melting Point	801^0C	-182^0C

a)From the given compounds A and B, Identify the covalent compound. Justify your answer.

b)Draw the electron dot structure of CH_4.

c)Write the chemical equations for the following chemical reactions:

i)Dropping a very small piece of sodium metal into absolute ethanol.

ii)Adding 5% solution of alkaline potassium permanganate to ethanol and warm the mixture.

SECTION C

30 If the absolute refractive indices of two media X and Y are 6/5 and 4/3 respectively, then the refractive index of Y with respect to X will be 1

A.10/9

B. 9/10

C. 9/8

D. 8/9

31 A person's near point of the eye is 45 cm and far point of the eye is 2m. What kind of lens is best suited for his correction of eye defect? 1

A. Convex B. concave C. bifocal D. plano-convex

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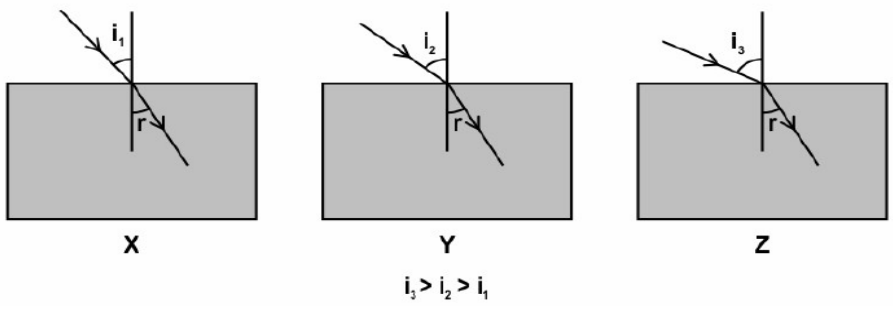
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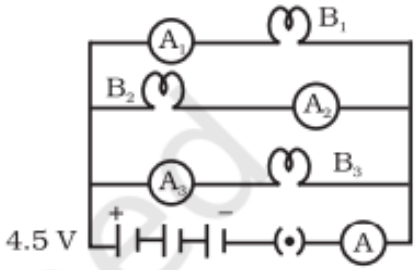
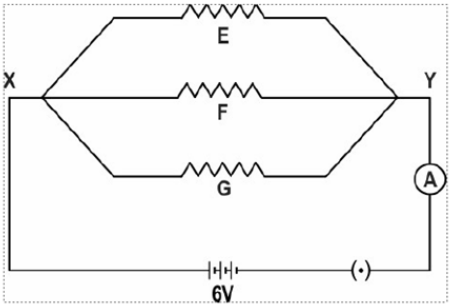
D. A is false but R is true.

32 Assertion (A): A compass needle is placed near a current carrying wire. The deflection of the compass needle decreases when the magnitude of the current in the wire is increased. 1

Reason (R): The strength of a magnetic field at a point near the conductor increases on increasing the current.

33 The image given below shows the refraction of light in three transparent rectangular blocks, X,Y,Z, made of different materials, when are placed in air.The angle of incidence is different in each case , but the angle of refraction is same in all the three blocks.Compare the speed of light in all the three blocks .Justify your answer. 2



34	*Attempt either option A or B.* (A)B_1, B_2 and B_3 are three identical bulbs connected as shown in Figure .  When all the three bulbs glow, a current of 3A is recorded by the ammeter A. (i) What happens to the brightness of the other two bulbs when the bulb B1gets fused? (ii) What is the reading of A2, A3 and A when the bulb B1 gets fused? OR (B)Three resisters in a circuit are attached as shown here. The resistance of F and G are 10 ohm and 5 ohm respectively. The resistance of E is unknown. Theses resisters are connected to a battery of 6 V .  a)What is the resistance of E if 0.3 A current flows through it. b)What is the current shown by the ammeter A?	2
35	In a classroom demonstration, a student uses two identical prisms placed together in opposite orientation (an inverted prism placed after an upright one). (a) What happens to the dispersed spectrum after passing through the second prism? (b) What does this show about the nature of white light? (c) How is the angle of deviation related to this phenomenon of dispersion?	3
36	A heating coil is often made of nichrome instead of copper, even though both are good conductors of electricity. (a) Give a scientific reason for choosing nichrome over copper for making heating coils. (b) How does this property of nichrome influence the heating efficiency of the appliance? (c) State any two essential properties that a material must possess to be suitable for use in heating devices.	3
37	A straight conductor carrying current is placed in a magnetic field. A student observes that at some positions the conductor experiences a force, but in one particular arrangement, it experiences no force at all even though current flows through it. (a) Identify the position of the conductor in this arrangement where conductor experiences no force .Give a probable reason for no force acts in that arrangement.	3

	(b) What change should be made in the setup so that the conductor experiences maximum force? (c) State the factors on which the magnitude of force on the conductor depends.	
38	*Attempt either subpart C or D.(A&B compulsory)* A spherical mirror produces an image of magnification -1 on a screen placed at a distance of 50 cm from the mirror. A. Write the type of mirror and its focal length B. Find the distance of the image from the object. C. Draw the ray diagram to show the image formation in this case. OR D. Draw the ray diagram when the object is placed at the focal point of this mirror	4
39	*Attempt either option A or B.* A) A family uses an electric kettle (1500 W), toaster (800 W), and microwave oven (1200 W) simultaneously on a 230 V domestic circuit. (a) Calculate the current drawn by each appliance. (b) Find the total current drawn from the circuit. (c) If the above household circuit is protected by a 15 A MCB, will it trip? Support your answer. (d) Why is it not advisable to operate too many high-power appliances at the same time? OR B) a)A heater of 1000 W is connected to a 230 V domestic supply through a 5 A fuse. (i) Calculate the current drawn by the heater. (ii) Is a 5 A fuse suitable for the normal operation of the above circuit? Explain your reasoning. (iii) Why is a fuse made of a material with a low melting point? (b) A student wants to use a solenoid as an electromagnet for picking up small iron nails. The electromagnet made by the student is not strong enough for the purpose. List any two changes she can make in the solenoid to increase the strength of the magnetic field.	5