CBSE EXAMINATION PAPER-2025

SCIENCE

(Solved)

Time allowed : 3 hours | Maximum Marks : 90

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **45 questions.** All questions are **compulsory.**

ii. This question paper is divided into **5 sections.**

iii. **Section A** – questions number **1 to 3** are case based questions

iv. **Section B** – questions number **4 to 23** are multiple choice questions

v. **Section C** – questions number **24 to 31** are very short answer

vi. **Section D** – questions number **32 to 39** are short answer

vii. **Section E** – questions number **40 to 45** are long answer

viii. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

ix. Use of calculator is NOT allowed.

Section A

Question 1.

Many pure metals like copper, iron and gold are very soft and as such are considered unsuitable for certain uses. Metallic objects around us such as cooking utensils, statues, ornaments, guns etc. are actually not made up of pure metals. Instead of pure metals, alloys are used in the design of most of the useful objects. Making alloys enhances the basic properties of a metal which is the primary constituent (metal) of an alloy.

(1) Name an alloy used for welding two wires together in an electric circuit. Write its major constituents.

[1 Marks]

(2) How does electrical conductivity and melting point of a metal change when it is converted to its alloy by mixing a small amount of an element in it?

[1 Marks]

(3)

What is stainless steel ? How is it prepared ? Write one important property which makes it more useful in making cooking utensils as compared to its primary metal.

[2 Marks]

(4)

What are alloys ? How is 'Brass' (an alloy) prepared ?

[2 Marks]

Question 2. The growth movements of plant parts in which the direction of the stimulus determines the direction of the response is known as tropic movements or tropism. Plants also have non-directional movements which may not be growth dependent.



(1)

Name the movement which causes ‘X’ and ‘Y to grow downwards and upwards respectively. (Refer above figure)

[1 Marks]

(2)

Write the name of a hormone that plays a major role in (i) falling of leaves (ii) rapid cell division

[1 Marks]

(3)

Leaves of the sensitive plant move very quickly in response to ‘touch’. How is this stimulus of touch communicated and explain how the movement takes place.

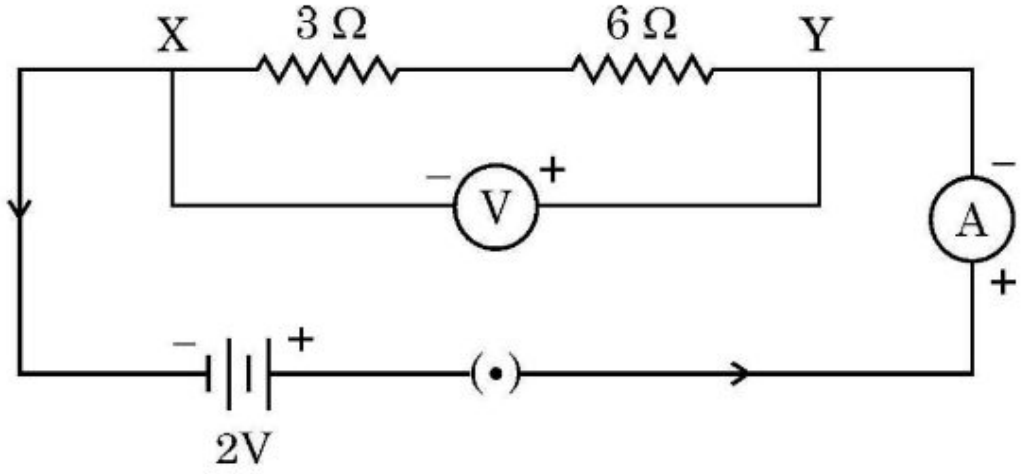
[2 Marks]

(4)

Name the plant hormone which is synthesized at the shoot tip. How does this hormone helps the plant to bend towards light ?

[2 Marks]

Question 3. Study the circuit shown in which two resistors X and Y of resistances 3Ω and 6Ω respectively are joined in series with a battery of 2V.



(1)

Draw a circuit diagram showing the above two resistors X and Y joined in parallel with same battery and same ammeter and voltmeter.

[1 Marks]

(2)

In which combination of resistors will the (i) potential difference across X and Y and (ii) current through X and Y, be the same ?

[1 Marks]

(3)

Find the current drawn from the battery by the series combination of the two resistors (X and Y).

[2 Marks]

(4)

Determine the equivalent resistance of the parallel combination of the two resistors (X and Y).

[2 Marks]

Section B

Question 4.

In the following experimental setup of electrolysis of water, if P and Q are the gases collected in the test tubes enclosing the electrodes R and 8S, then select the option/options in which the matching is correct :

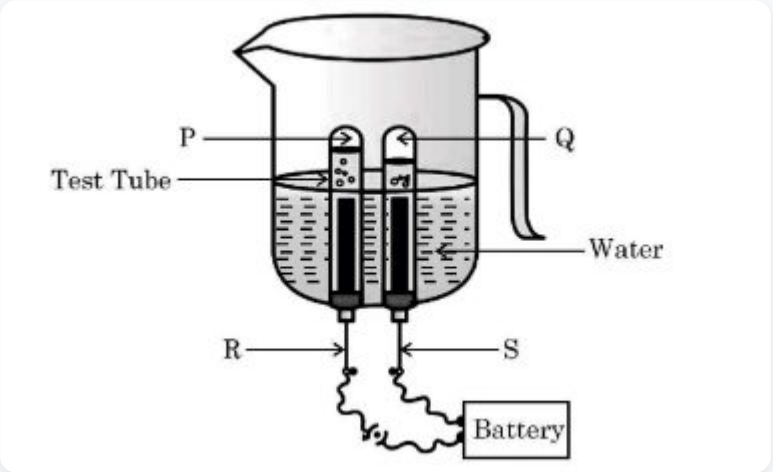
(i) P – Oxygen gas , R – Anode

(ii) P – Hydrogen gas , R – Cathode

(iii) Q – Hydrogen gas , S – Cathode

(iv) Q – Oxygen gas , S – Anode

[1 Marks]



(A) (i) and (ii)

(B) (ii) and (iv)

(C) (i) and (iii)

(D) (iii) and (iv)

Question 5.

You have three aqueous solutions A, B and C as given below:
A – Potassium nitrate
B – Ammonium chloride
C – Sodium carbonate

The ascending order of the pH of these solutions is:

[1 Marks]

(A) B < A < C

(B) B < C < A

(C) C < A < B

(D) A < B < C

Question 6.

Select from the following a statement which is not true about burning of magnesium ribbon in air :

[1 Marks]

(A) A white powder is formed on burning.

(B) Itis an example of a combination reaction.

(C) Itis an endothermic reaction.

(D) It burns with a dazzling white flame.

Question 7.

A Hydrocarbon which does not belong to the same homologous series of carbon compounds is

[1 Marks]

(A) C_4H_{10}

(B) C_6H_{14}

(C) $C_{10}H_{22}$

(D) C_7H_{14}

Question 8.

The colour of the solution observed after about 1 hour of placing iron nails in copper sulphate solution is

[1 Marks]

(A) Blue

(B) Yellow

(C) Pale green

(D) Reddish brown

Question 9.

Juice of tamarind turns blue litmus to red. It is because of the presence of a chemical compound called

[1 Marks]

(A) Tartaric acid

(B) Acetic acid

(C) Oxalic acid

(D) Methanoic acid

Question 10.

The water of crystallization is present in

(i) Bleaching Powder (ii) Plaster of Paris (iii) Washing Soda (iv) Baking Soda

[1 Marks]

(A) (ii) and (iii)

(B) (ii) and (iv)

(C) (i) and (iv)

(D) (i) and (iii)

Question 11.

A tall pea plant with round seeds (TTRR) is crossed with a short pea plant with wrinkled seeds (ttrr). The F_1 generation will be:

[1 Marks]

(A) 100% tall with round seeds

(B) 50% tall with wrinkled seeds

(C) 25% tall with round seeds

(D) 75% tall with wrinkled seeds

Question 12.

A pair of endocrine glands located in the human brain is

[1 Marks]

(A) Parathyroid and Pituitary

(B) Pineal and Thymus

(C) Hypothalamus and Thymus

(D) Hypothalamus and Pineal

Question 13.

Select the option having correct matching of the organism given in Column I with the mode of reproduction in Column II:

[1 Marks]

	Column I		Column II
P	Leishmania	1.	Regeneration
Q	Spirogyra	2.	Multiple Fission
R	Planaria	3.	Binary Fission
S	Plasmodium	4.	Fragmentation
		5.	Budding

(A) P-3, Q-4, R-5, S-2

(B) P-3, Q-4, R-1, S-2

(C) P-4, Q-2, R-1, S-3

(D) P-4, Q-3, R-2, S-1

Question 14.

The basic filtration unit of the excretory system in human beings is :

[1 Marks]

(A) Nephron

(B) Urethra

(C) Neuron

(D) Urinary bladder

Question 15.

In human alimentary canal, the digestive juice secreted by the gastric glands are

[1 Marks]

(A) Hydrochloric acid, Pepsin, Mucus

(B) Bile, Trypsin, Pepsin

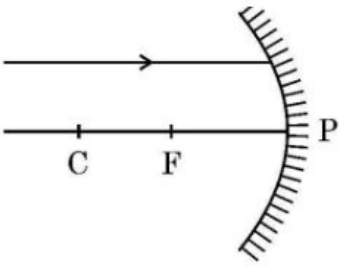
(C) Salivary amylase, Pepsin, Bile

(D) Lipase, Bile, Mucus

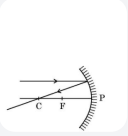
Question 16.

Identify from the following the ray diagram which shows the correct path of the reflected ray for the ray incident on a concave mirror as shown :

[1 Marks]



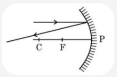
(A)



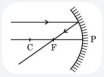
(B)



(C)



(D)



Question 17.

The part of human eye which controls the amount of light entering into it.

[1 Marks]

(A) Iris

(B) Ciliary muscles

(C) Cornea

(D) Pupil

Question 18.

Consider the following food chain:
Grass → Grasshopper → Frog → Snake → Eagle

If the amount of energy available at third trophic level is 50 kJ, the available energy at the producer level was:

[1 Marks]

(A) 500 kJ

(B) 5 kJ

(C) 5000 kJ

(D) 0.5 kJ

Question 19.

The incorrect statement about ozone is

[1 Marks]

(A) It is formed by combining oxygen molecule with free oxygen atom.

(B) It is used as a refrigerant and in fire-extinguishers.

(C) It is a deadly poisonous gas.

(D) It shields the surface of the earth from UV radiation from sun.

Question 20.

Assertion (A) : Carbon and its compounds are our major sources of fuels.

Reason (R) : Most of the carbon compounds on burning release a large amount of heat and light.

[1 Marks]

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(B) Assertion (A) is false, but Reason (R) is true.

(C) Assertion (A) is true, but Reason (R) is false.

(D) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of the Assertion (A).

Question 21.

Assertion (A) : Xylem tissue moves water and minerals obtained from the soil by the roots.

Reason (R) : Xylem tissue is found only in the roots of a plant.

[1 Marks]

(A) Assertion (A) is false, but Reason (R) is true.

(B) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(C) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of the Assertion (A).

(D) Assertion (A) is true, but Reason (R) is false.

Question 22.

Assertion (A): In the common domestic circuits the earth wire is connected to a metallic plate buried deep inside the earth.

Reason (R) : Earth wire ensures that any leakage of current to the metallic body of the appliance keeps its potential to that of the earth, so the user may not get a severe electric shock.

[1 Marks]

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(B) Assertion (A) is true, but Reason (R) is false.

(C) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of the Assertion (A).

(D) Assertion (A) is false, but Reason (R) is true.

Question 23.

Assertion (A) : Food web is a network of several food chains operating in an ecosystem.

Reason (R) : Food web decreases the stability of an ecosystem.

[1 Marks]

(A) Assertion (A) is false, but Reason (R) is true.

(B) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

(C) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of the Assertion (A).

(D) Assertion (A) is true, but Reason (R) is false.

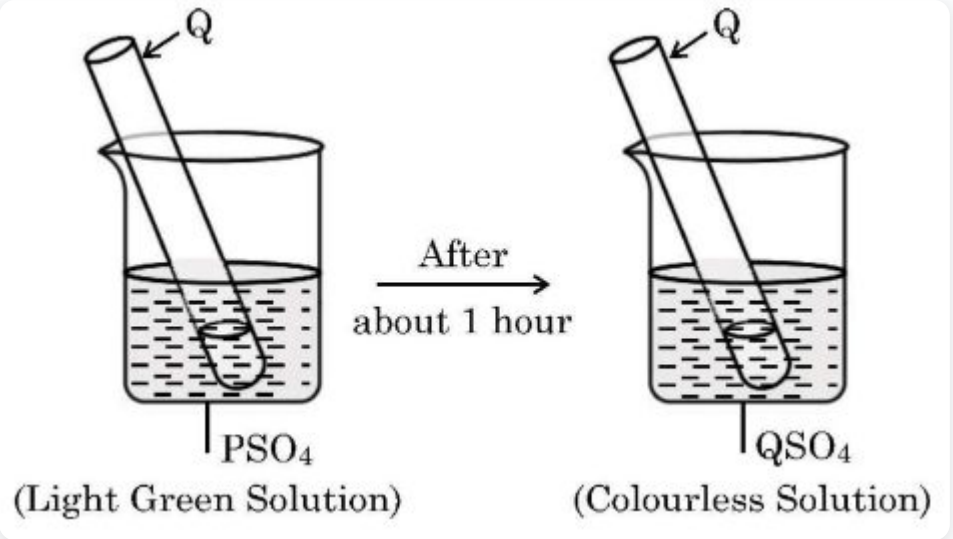
Section C

Question 24.

A light green coloured solution of sulphate salt of metal ‘P’ is taken in a beaker, a rod of another metal “Q’ is put in this solution as shown the following figures :

Identify the metals ‘P’ and ‘Q’ and write its chemical equation for the reaction that occurs. State the conclusion of this reaction in terms of reactivity series of metals.

[2 Marks]



Question 25.

(a) How is brain protected in our body ?

(b) A doctor finds in one of his patients that he is not maintaining a proper posture and balance of his body. State the region of brain and also the part of brain which is responsible for it.

[2 Marks]

Question 26.

“Proteins control the expression of various characters.” Explain this statement by taking an example of “tallness” as a characteristic in plants.

[2 Marks]

Question 27.

Explain the mechanism of inheritance used by sexually reproducing organisms to ensure the stability of DNA of the species.

[2 Marks]

Question 28.

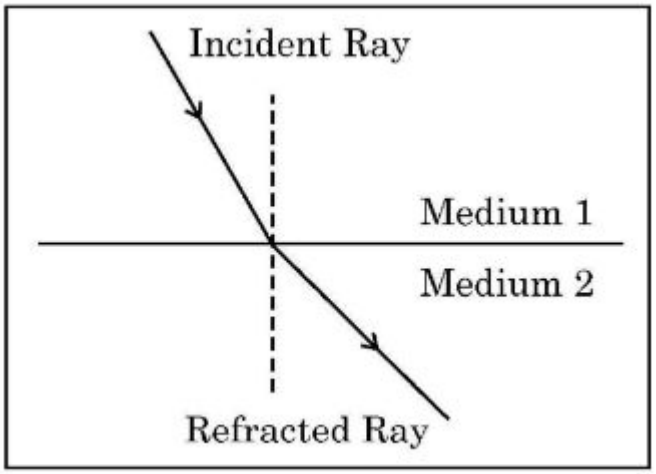
Study the figure in which the path of a ray of light going from Medium 1 to Medium 2 is shown.

(a) Out of the two Media — Medium 1 and Medium 2, in which is the speed of light more ?

(b) State reason of bending of the refracted ray away from the normal.

(c) Express refractive index of Medium 2 with respect to Medium 1 in terms of speed of light in two media.

[2 Marks]



Question 29.

Give Reasons:-

(i) The sky appears dark to passengers flying at very high altitude.

(ii) 'Danger' signal lights are red in colour.

[2 Marks]

Question 30. What is a rainbow? "We see a rainbow in the sky only after the rainfall." Why?

[2 Marks]

Question 31. We do not clean natural ponds or lakes whereas an aquarium or a swimming pool needs to be cleaned regularly. Why?

[2 Marks]

Section D

Question 32.

Write balanced chemical equation for the reactions that occur when

(a) steam is passed over red hot iron.

(b) natural gas is burnt in air.

(c) glucose reacts with oxygen in the cells of our body and provides energy.

[3 Marks]

Question 33.

State the chemical property in each case on which the following uses of baking soda are based upon:

(i) as an anti-acid,

(ii) as a constituent in making baking powder,

(iii) in soda-acid fire extinguishers.

[3 Marks]

Question 34.

Write chemical equations to show what happens when an acid reacts with

(i) metal,

(ii) base,

(iii) carbonate.

Write the name of the main product formed in each case.

[3 Marks]

Question 35. Name the blood vessel that brings (i) oxygenated blood, (ii) deoxygenated blood, to the human heart. Also, name the chamber of the heart which receives deoxygenated blood and state how deoxygenated blood from this chamber is sent to lungs for oxygenation.

[3 Marks]

Question 36.

The gene combination of purple flowered pea plants is denoted as (WW) and that of white flowered pea plants as (ww). When these two plants are crossed, F_1 generation is obtained.

(a) List two observations made by Mendel in F_1 generation plants.

(b) Give the (i) percentage of white flowered plants and (ii) ratio of the gene combinations WW, Ww and ww in F_1 generation.

(c) Write one difference between dominant and recessive trait.

[3 Marks]

Question 37.

A student placed a candle flame at different distances from a convex lens and focused its image on a screen. He recorded his observation in tabular form as given below :

Analyse the observation table and on the basis of your analysis only, answer the following questions (without doing any calculations) :

(a) What is the focal length of the convex lens used ? Give reason to justify your answer.

(b) Which one of the sets of observations is not correct and why ?

(c) Draw ray diagram to show image formation for any correct set of observation.

[3 Marks]

S.No.	Distance of flame from the lens (cm)	Distance of the image from the lens
1	– 90	+ 18
2	– 60	+ 20
3	– 40	+ 24
4	– 30	+ 30
5	– 24	+ 40
6	– 20	+ 60
7	– 18	+ 90
8	– 12	+ 120

Question 38.

A person uses lenses of +2.0 D power in his spectacles for the correction of his vision.

(a) Name the defect of vision the person is suffering from.

(b) List two causes of this defect.

(c) Determine the focal length of the lenses used in the spectacles.

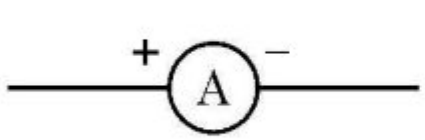
[3 Marks]

Question 39.

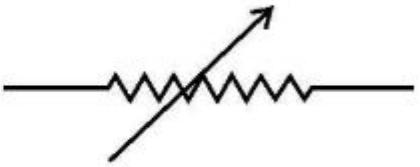
(a) Explain the statement “Potential difference between two points is 1 volt”.

(b) What do the symbols given below represent in an electric circuit ? Write one function of each.

[3 Marks]



(i)



(ii)

Section E

Question 40.

Name an alcohol and a carboxylic acid having two carbon atoms in their structures. Draw their structures and state how this alcohol can be converted into a carboxylic acid. What happens when these two compounds react in the presence of an acid ? Write chemical equations for the reactions involved in the two cases mentioned above.

[5 Marks]

Question 41.

(a) Define Puberty. List any two changes seen in boys at the time of puberty.

(b) Why are testes in human males located outside the abdominal cavity in scrotum ?

(c) List any three techniques of contraception used by humans. Which one of these is not meant for males ?

[5 Marks]

Question 42.

(a) Name the part performing following functions in human female reproductive system :

(i) production of eggs

(ii) site of fertilization

(iii) site of implantation

(iv) entry of the sperms

(b) What changes are observed in the uterus :

(i) subsequent to implantation of zygote and

(ii) if an egg does not get fertilized ?

[5 Marks]

Question 43.

What are soaps ? Write the structure of a soap molecule. Explain the cleansing action of a soap. Why are soaps not considered suitable for washing clothes in a region where water is hard ? How is this problem overcomed ?

[5 Marks]

Question 44.

What are magnetic field lines ? How is the direction of magnetic field at a point determined ? Draw the pattern of magnetic field lines of the magnetic field produced by a current carrying circular loop. Mark on it the direction of (i) current and (ii) magnetic field lines.

Name the two factors on which the magnitude of the magnetic field due to a current carrying coil depends.

[5 Marks]

Question 45.

Why can’t two magnetic field lines cross each other ? Draw magnetic field lines showing the direction of the magnetic field due to a current carrying long straight solenoid. State the conclusion which can be drawn from the pattern of magnetic field lines inside the solenoid.

Name any two factors on which the magnitude of the magnetic field due to this solenoid depends.

[5 Marks]