Cheating Replaces Learning

PREBOARD 1

MM.80 **BVP/X/SC/2025-26**

Time: 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.

SECTION A

Q1. Which of the following statements about transmission of nerve impulse is incorrect?

a) Nerve impulse travels from dendritic end towards axonal end.

b) At the dendritic end electrical impulses bring about the release of some chemicals which generate an electrical impulse at the axonal end of another neuron.

c) The chemicals released from the axonal end of one neuron cross the synapse and generate a similar electrical impulse in a dendrite of another neuron.

d) A neuron transmits electrical impulses not only to another neuron but also to muscle and gland cells. (1)

Q2. Find the mismatched pairing:

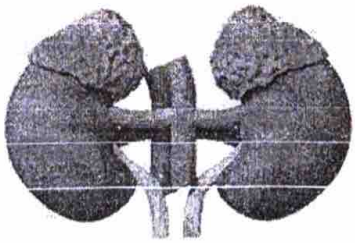
a) Hydra: Specialised cells

b) Bacteria: Binary fission

c) Bryophyllum: Stem

d) Plasmodium : Cyst (1)

Q3. Which of the following is a function of gland shown in the image? (1)



a) Stimulate master gland to release hormone

b) Regulates blood sugar level

c) Regulates carbohydrate metabolism

d) Supply of more oxygen to our muscles as per the body requirement

Q4. Along the path of the vas-deferens the secretions of which gland provide nutrition to the sperms? (1)

a) Prostate glands

b) Seminal vesicles

c) Scrotum

d) Urinary bladder

Q5. A Mendelian experiment consisted of breeding tall pea plants bearing violet flowers with short pea plants bearing white flowers. All the progeny were tall ~~bore violet flowers,~~ but almost half of them bore ~~violet~~ white flowers.
This suggests that the genetic make-up of the tall parent can be depicted as (1)

a) TTWW
b) TTww
c) TtWW
d) TTWw

Q6. What are the products obtained by anaerobic respiration in plants? (1)

a) Lactic acid + Energy
b) Carbon dioxide + Water + Energy
c) Ethanol + Carbon dioxide + Energy
d) Pyruvate

Q7. What is the order of the waste management hierarchy, from most to least favoured? (1)

a) Prevention-Recycle-Reuse-Disposal
b) Prevention-Reuse-Disposal-Recycle
c) Prevention-Disposal-Reuse-Recycle
d) Prevention-Reuse-Recycle-Disposal

The following question (Q8 and Q9) 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

Q8. Assertion: Characteristics of parental plants can be preserved through Vegetative Propagation. (1)
Reason: Asexual reproduction involves only mitosis.

Q9. Assertion: Pesticides accumulate progressively at each trophic level. (1)
Reason: Chemicals are non-biodegradable.

Q10. Design an activity (Procedure, observation and conclusion) to show action of salivary amylase using a piece of brown bread. (2)

Q11. Oak Tree---------Caterpillar----------Tree Creeper

a) In the above food chain which group of organisms will be of primary importance and why?
b) What will be the impact of killing all the organisms of Primary consumers? (2)

Q12. In a cross between Homozygous Tall and Homozygous short Pea plant two generations were studied. On the basis of above cross answer the following questions:

a) Percentage of short plant in F2 generation.
b) Percentage of Tt Genotype in F2 generation.
c) Show the resultant progeny if Dominant pure line parent is crossed with one of the F1 progeny (2)

Q13. Give reason (3)

a) Plants use slow transport system.
b) Veins donot need thick walls instead they have valves.
c) Lungs always contain a residual volume of air.

Q14. "It is a matter of chance whether a couple will give birth to a male or female child." Justify the statement with a suitable cross showing progenies. (3)

Q15. A group of students working on a science project titled response of living beings to stimuli, observed two examples: One a frog jumped instantly as a stone was thrown near it. Second when a potted sunflower slowly bent towards the sunlight. They analysed how both organisms co-ordinated these responses. Based on above information answer the following questions (4)

a) Give the specific term to action shown by both the organisms respectively.
b) What type of signal was involved in case of frog and which part of its nervous system will be transferring this signal?
c) How bending of sunflower is different from bending of tendril towards support?(any two points)

Q16. a) How does uterus prepare itself every month to receive a fertilised egg? (5)

b) What will happen if human egg does not get fertilised?
c) Which structure is responsible for nourishment of embryo in case of angiosperms? Also mention the name of process involved in formation of that structure.

SECTION B

Q17. The pairs which will show displacement reaction is/are: (1)

(i) NaCl solution and Cu metal
(ii) $AgNO_3$ solution and Cu metal
(iii) $Al_2(SO4)_3$ solution and Mg metal
(iv) $ZnSO_4$ solution and Fe metal

Choose correct option-

a) Only (ii)
b) (ii) and (iii)
c) (iii) and (iv)
d) (i) and (ii)

Q18. Which of the following gases can be used for storage of fresh sample of an oil for a long time: (1)

a) Carbon dioxide or Oxygen
b) Nitrogen or Oxygen
c) Carbon dioxide or Helium
d) Helium or Nitrogen

Q19. Consider the reaction: (1)

$$2KClO_3 \xrightarrow{heat} 2KCl + 3O_2$$

Which of the following statement is correct about this reaction?

a) It is a decomposition reaction and endothermic in nature
b) It is a decomposition reaction and exothermic in nature
c) It is a combination reaction and exothermic in nature
d) It is a displacement reaction and exothermic in nature

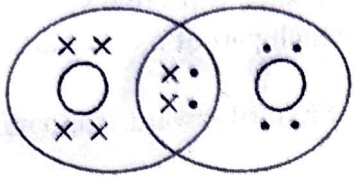
Q20. Which of the following is used for the dissolution of gold? (1)

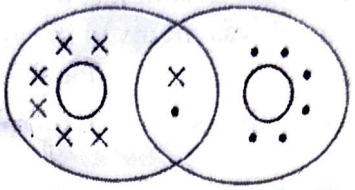
a) Hydrochloric acid
b) Sulphuric acid
c) Aqua regia
d) Sodium hydroxide

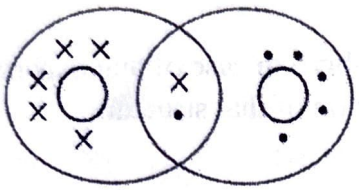
Q21. A drop of liquid sample was put on the pH paper. The colour of the pH paper turned blue, The liquid sample could be that of : (1)

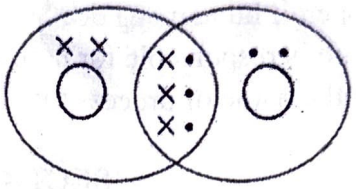
(a) Lemon juice
(b) Hydrochloric acid
(c) Sodium bicarbonate
(d) Ethanoic acid

Q22. The correct representation of covalent bonding in an oxygen molecule is : (1)

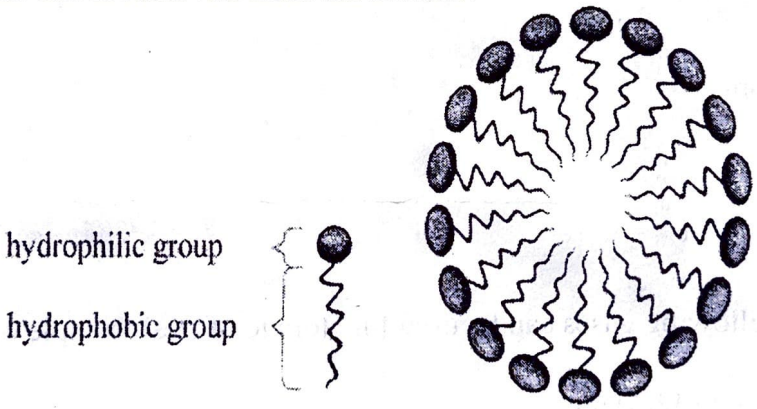
(a) 

(b) 

(c) 

(d) 

Q23. A student studies that soap solution results in micelle formation which helps to remove dirt. It has unique orientation which helps in cleaning dirt. Which of the following best explains how the dirt is removed from the surface? (1)



Options:

a) The hydrophobic tails of soap molecules attach to the dirt or grease, while the hydrophilic heads remain in water, forming micelles that lift the dirt off the surface.
b) The hydrophilic heads of soap molecules attach to the dirt, making it dissolve directly into water.
c) Soap molecules completely dissolve in water without forming any micelles, allowing dirt to mix freely with water.
d) The soap molecules chemically react with dirt to form new compounds that are soluble in water.

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

e) Both A and R are true and R is the correct explanation of A
f) Both A and R are true and R is not the correct explanation of A
g) A is true but R is false
h) A is False but R is true

Q24. **Assertion:** Alloying is not a good method to improve the properties of a metal. (1)
Reason: For alloying, we can also take a mixture of a metal and a non-metal

Q25. (i) Show the formation of ionic compound CaO with electron dot structure. (2)
(ii) Complete the following reactions:
a) $Al_2O_3 + 6HCl \rightarrow \quad ? \quad + 3H_2O$
b) $Al_2O_3 + \quad ? \quad \rightarrow 2NaAlO_2 + H_2O$

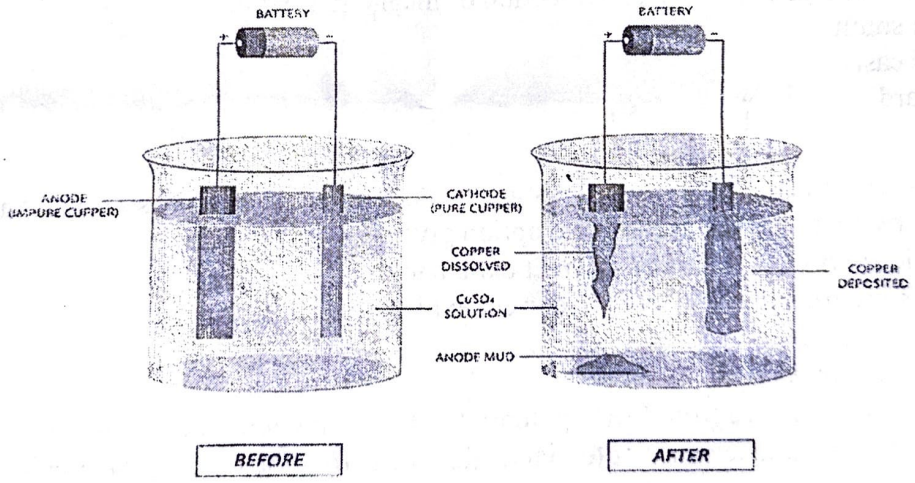
Q26. (i) When magnesium ribbon is burnt in air, an ash of white colour is produced. (3)
Write:
(a) a balanced chemical equation for the reaction
(b) state the type of chemical reaction.

(ii) Identify the reducing agent in the following reactions :
(a) $4NH_3+5O_2 \rightarrow 4NO+6H_2O$
(b) $ZnO + C \rightarrow Zn + CO$

Q27. (i) Give a chemical equation when zinc carbonate is heated strongly in a limited supply of air? Categorise this reaction under Calcination or Roasting. (3)

(ii) The reaction of a metal A with Fe_2O_3 is highly exothermic and is used to join railway tracks. Identify the metal A and name the reaction taking place.

(iii) What is the purpose of the experiment shown below? What is anode mud?



Q28. **Read the given passage and answer the questions based on passage and related studied concepts:** (4)
During a science activity, students of Class X observed that different household materials such as baking soda, washing soda, bleaching powder, and Plaster of Paris are all examples of salts derived from acids and bases. Their teacher explained that salts are formed by the reaction between acids and bases. Students also tested different salts with litmus solution and phenolphthalein.
(i) What type of salt is produced when a weak acid reacts with a strong base?
(ii) How is washing soda obtained from baking soda? Write chemical equations involved.
(iii) On heating 'X' at 373K, it lose water molecules and becomes 'Y'.
Y is a substance which doctors use for supporting fractured bones in the right position.
a) Identify X and Y
b) How can X be reobtained from Y?

Q29. (i) Name the following compounds: (5)

a) $CH_3-CH_2-CH_2-\overset{\overset{O}{\|}}{C}-H$

b) $H-\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}-\overset{\overset{O}{\|}}{C}-O-H$

(ii) Draw structural isomers of pentane.

(iii) Write the chemical equations to represent:

a) Combustion of methane

b) Hydrogenation of ethene

(iv) Give reasons: Element carbon forms compounds mainly by covalent bonding.

Section – C

30. Choose the correct option from the below which explains the reason for us to perceive the day sky as blue.

A. As sunlight passes through the atmosphere, shorter wavelengths, such as blue are scattered more than other colours.

B. The sky appears blue because all colours are scattered equally, but blue light is stronger and more visible to the human eye.

C. The blue colour of the sky is due to longer wavelengths like red and orange scattering more than shorter wavelengths, making blue stand out more.

D. The atmosphere contains blue-colored particles that give the sky its blue appearance.

31. A positively-charged particle (alpha-particle) projected towards the west is deflected towards north by a magnetic field. The direction of magnetic field is

1. towards south
2. towards east
3. downward
4. upward

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.

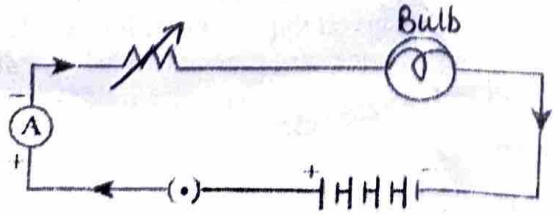
B. Both A and R are true, and R is not the correct explanation of A.

C. A is true but R is false.

D. A is false but R is true.

32. Assertion: Electrons move from lower potential to higher potential in a conductor.
Reason: A dry cell maintains electric potential difference across the ends of the conductor.

33. A 18 Volt battery is connected across a lamp whose resistance is 50 ohm, through a variable resistor. If the current flowing through the circuit is 0.3 A. Calculate the value of resistance used from the variable resistor. (2)



34. What is a solenoid? When does a solenoid behaves as a bar magnet? Draw the pattern of the magnetic field produced inside it showing the directions of the magnetic field lines. (2)

35. 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:(3)

S. No.	Object distance (u) cm	(v) cm
1	-150	+30
2	-75	+37.5
3	-50	+50
4	-37.5	+75
5	-30	+150
6	-15	+37.5

(i) Without calculation, find the focal length of the convex lens. Justify your answer.
(ii) Which observation is not correct? Why?
(iii) Find the approximate value of magnification for **u = – 30 cm**. Draw ray diagram to find the position of the image formed for this position of the object.

36. i) The potential difference across the two ends of a circuit component is decreased to one third of its initial value, while its resistance remains constant. What change will be observed in the current flowing through it? Name and state the law which helps us to answer this question.
ii) Draw a schematic diagram of a circuit consisting of a battery of four cells of potential 1.5 V each, a 5 ohm, a 10 ohm and a 15 ohm resistor and a plug key, all connected in series. (3)

37. (a) The linear magnification produced by a spherical mirror is -1. Analysing this value state the (i) type of mirror and (ii) position of the object with respect to the pole of the mirror. Draw any diagram to justify your answer.
(b) Name the type of the mirrors used in Solar furnace. Explain how high temperature is achieved by this device. (3)

38. In purely resistive circuit, the energy expended by the source entirely appears as heat. But if the circuit has an active element like a motor, then a part of energy supplied by the source goes to do useful work and the rest appears as heat. The amount of heat produced is directly proportional to the square of the current flowing in a conductor, resistance and the time. Electrical devices such as an electric fuse, electric heater etc. are all based on this effect called heating effect of electric current. (4)
(a) List two properties of electric fuse.
(b) Name the principle on which electric fuse works. Explain how a fuse wire is capable of saving electrical appliances from getting damaged due to accidently produced high currents.
© The power of an electric heater is 110W. If the potential difference between the two terminals of a heater is 220V, find the current flowing in the circuit. What will happen to an electric fuse of rating 5A connected in this circuit?

39. A student suffering from myopia is not able to see distinctly the objects placed beyond 5m.
(a) List two possible reasons due to which this defect of vision may have arisen.
With the help of ray diagrams, explain
(i) Why the student is unable to see distinctly the objects placed beyond 5 m from his eyes?
(ii) The type of the corrective lens used to restore proper vision and how this defect is corrected by the use of this lens.
(b) If, in this case, the numerical value of the focal length of the corrective lens is 5 m, find the power of the lens. (5)