"Kendriya Vidyalaya Sangathan, Varanasi Region"

Pre- Board –I Examination 2025-26

Class – X Max. Marks – 80

Subject- Science Max. Time – 03 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)

1.	Parasitic mode of nutrition is observed in: a) Bryophyllum b) Hibiscus c) Cuscuta d) Helianthus	1
2.	Where does the first step of glucose breakdown (glycolysis) take place in the cell? a) Nucleus b) Mitochondria c) Cytoplasm d) Ribosome	1
3.	A person met with an accident and injured a part of his hind brain. Identify the function that is most likely to be affected due to injury: a) Display of emotions b) Walking in a straight line c) Regulation of blood pressure d) Maintenance of body temperature	1
4.	Cell division in plants is promoted by _____. a) Cytokinins b) Abscisic acid c) Auxin d) Gibberellins	1
5.	Consider the following statements: i) The sex of a child is determined by what it inherits from the mother. ii) The sex of a child is determined by what it inherits from the father. iii) The probability of having a male child is more than that of the female child. iv) The sex of a child is determined at the time of fertilization when male and female gametes fuse to form a zygote. The correct statements are: a) i) and ii) b) ii) and iv) c) iii) and iv) d) i), iii) and iv	1
6.	Identify the food chain in which the organisms of second trophic level are missing: a) grass, goat, lion b) zooplankton, phytoplankton, small fish, large fish c) tiger, grass, snake, frog d) grasshopper, grass, snake, frog, eagle	1
7.	Which of the following is not a role of decomposers in the ecosystem? a) Natural replenishment of soil. b) Enrichment of oxygen in the atmosphere. c) Waste decomposition d) Break- down of dead remains.	1

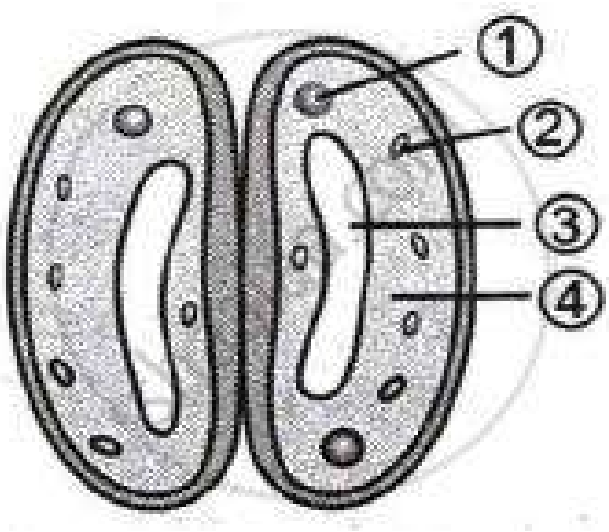
The following two questions consist of two statements – **Assertion (A) and Reason (R)** . Answer these questions by selecting the appropriate option given below.

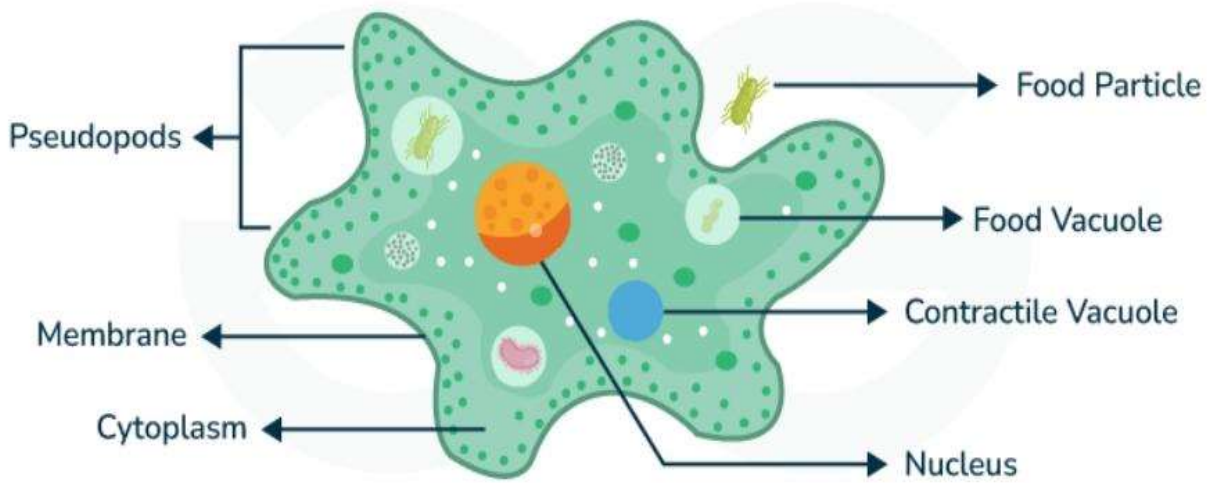
A. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

B. Both Assertion (A) and Reason (R) are true, but Reason (R) is ***not*** the correct explanation of Assertion (A).

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

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

8.	Assertion (A):- Recessive traits can only be expressed in homozygous condition. Reason (R):- Dominant trait cannot be expressed in heterozygous condition.	1
9.	Assertion(A):-The accumulation of harmful chemicals is maximum in organisms at the highest trophic level of a food chain. Reason(R):- Harmful chemicals are sprayed on crops to protect them from diseases and pests.	1
10.	In the given diagram of the closed stomata, label 1,2,3and 4 in the diagram.  	2
11.	Attempt either option A or B. A. List the role of each of the following in our digestive system: - a) Mucus b) Trypsin **OR** B. Name the following: a) The three-carbon molecule that is formed due to breakdown of glucose during respiration. b) The nitrogenous waste that is removed from the blood in our kidneys.	2
12.	(a) A villager near a river noticed that the number of fish in the river had decreased drastically a few weeks after heavy rainfall and nearby farming activity. What could be the possible cause of this decline? (b) How does this situation affect other organisms in the river ecosystem?	2
13.	By selectively removing the dominant apical bud, gardeners can promote the growth of lateral buds. This redistribution of resources helps balance the plant's growth and leads to more branching. (a) Name the phenomenon. (b) Name a plant hormone which is responsible for this phenomenon. (c) Why is this phenomenon encouraged in horticultural practices?	3
14.	In a survey it is found that blue eye colour is recessive among human in contrast to the brown eye colour. Answer the following questions, if a brown eyed man has a blue eyed mother. a) What are the possible genotypes of his father? b) What is the genotype of the man and his mother?	3
15.	A group of students is studying different modes of nutrition in animals. They observe a small pond ecosystem and notice various organisms like algae, protozoa, insects, and fish. One student, Priya, is particularly interested in how these organisms obtain their food and the different strategies they employ.	4

	 Questions: (a) What are the two main modes of nutrition observed in living organisms? Give one example of an organism for each mode. (b) Explain how the organisms in the pond, like insects and fish, obtain their nutrition. Give specific examples. (c) How is the nutrition in Amoeba different from that in humans? **OR** (d) Describe the process of how Amoeba obtains its food.	
16.	i). What is puberty? Write any two changes that occur in boys during early teenage years. ii) List two functions performed by testis in human males. iii) Mention one role each of: a) Vas deference b) Seminal vesicle c) Urethra and d) Scrotum in human male reproductive system **OR** i) Name any two sexually transmitted diseases. ii) Prenatal sex determination is prohibited by law. Why? iii) Name any three methods of contraception stating one side effect of each.	5

(SECTION- B)

17.	When **magnesium ribbon burns in air,** it forms a white ash that turns **moist red litmus paper blue.** Which of the following statements correctly explains this observation? a) Magnesium oxide is acidic in nature. b) Magnesium oxide is basic in nature. c) Magnesium oxide is neutral in nature. d) Magnesium oxide is amphoteric in nature.	1
18.	When 2 ml of sodium hydroxide solution is added to few pieces of granulated zinc in a test tube and then warmed, the reaction that occurs can be written in the form of a balanced chemical equation as: a) $NaOH + Zn \longrightarrow NaZnO_2 + H_2O$ b) $2NaOH + Zn \longrightarrow Na_2ZnO_2 + H_2$ c) $2NaOH + Zn \longrightarrow NaZnO_2 + H_2$ d) $2NaOH + Zn \longrightarrow Na_2ZnO_2 + H_2O$	1
19.	When 50g of lead powder is added to 300 ml of blue copper sulphate solution, after a few hours, the solution becomes colourless. This is an example of: a) Combination reaction	1

b) Decomposition reaction
c) Displacement reaction
d) Double displacement reaction

20. Which of the following reactions is an endothermic reaction? 1
a) Burning of coal.
b) Decomposition of vegetable matter into compost.
c) Process of respiration.
d) Decomposition of calcium carbonate to form quick lime and carbon dioxide.

21. Which among the following salts does not contain water of crystallization? 1
a) Baking soda b) Plaster of Paris c) Washing soda d) Gypsum

22. Anand took four colourless solutions P, Q, R and S, and performed the following tests. What is the definite conclusion that Anand can reach? 1

	Solution P	**Solution Q**	**Solution R**	**Solution S**
With methyl orange	No change in colour	Turns red	No change in colour	No change in colour
With phenolphthalein	No change in colour	No change in colour	No change in colour	Turns pink
With red litmus	No change in colour	No change in colour	No change in colour	Turns litmus blue
With blue litmus	No change in colour	Turns litmus red	No change in colour	No change in colour

a) Both P and S are salt solutions.
b) Both Q and S are basic solutions.
c) Both Q and R are salt solutions.
d) Both P and R are neutral solutions.

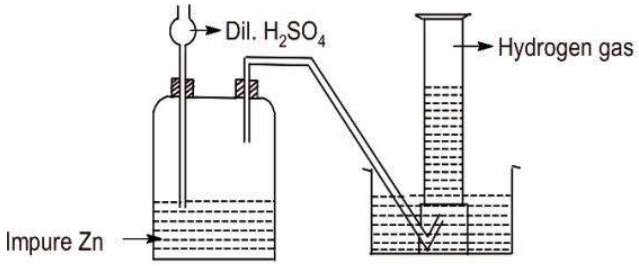
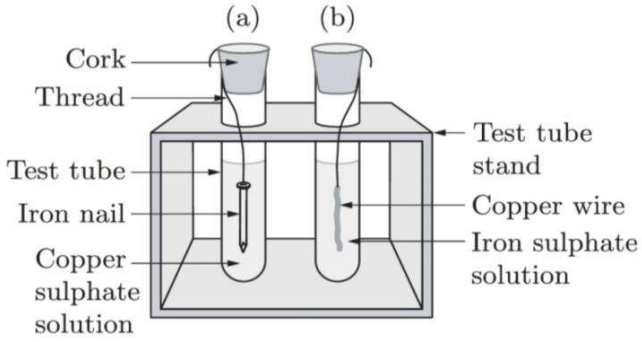
23. Match column I with column II and select the correct option using the given codes. 1

Column I	Column II
p) A metal that forms amphoteric oxides	i) Ga
q) A metal which melts when kept on our palm	ii) Au
r) A metal that reacts with nitric acid	iii) Al
s) A metal which can not displace hydrogen from acids	iv) Mn

a) p-ii, q- i, r- iii, s-iv
b) p-iii, q-i, r-iv, s-ii
c) p-iv, q-ii, r-iii, s-i
d) p-iii, q-ii, r-i, s-iv

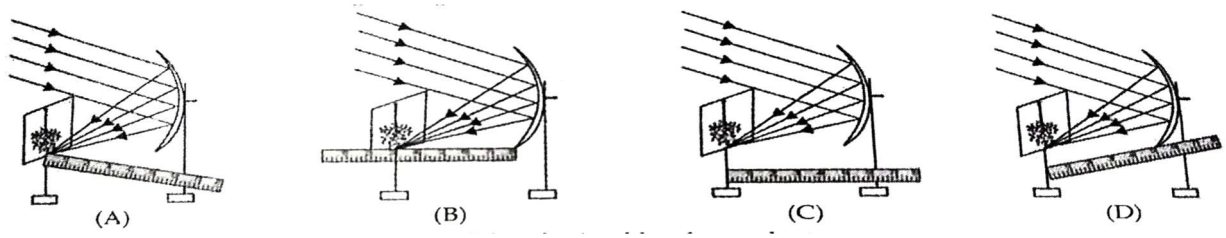
The following question consists of two statements – **Assertion (A) and Reason (R)**. Answer these questions by selecting the appropriate option given below.

A. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
B. Both Assertion (A) and Reason (R) are true, but Reason (R) is ***not*** the

	correct explanation of Assertion (A). C. Assertion (A) is true, but Reason (R) is false. D. Assertion (A) is false, but Reason (R) is true.	
24.	**Assertion (A):** In a homologous series of alcohols, the formula for the second member is CH_3CH_2OH and the third member is $CH_3CH_2CH_2OH$ **Reason (R) :** The difference between the molecular masses of the two consecutive members of a homologous series is 14.	1
25.	a) Why does Calcium start floating when it reacts with water? Write the balanced chemical equation of the reaction. b) Name two metals which do not react with water.	2
26.	In the schematic diagram for the preparation of hydrogen gas as shown in the figure. What would happen if the following changes are made.  Fig: Laboratory preparation of H_2 gas (a) In place of zinc granules the same amount of zinc dust is taken in the test tube? (b) Instead of dilute sulphuric acid dilute hydrochloric acid is taken. (c) Sodium hydroxide is taken in place of dilute sulphuric acid and the flask is heated?	3
27.	Observe the two test tube A and B as shown in the diagram given below and answer the following questions:  (a) In which test will the reaction take place? (b) Write a balanced chemical equation for the reaction. (c) Name the type of reaction. Or (a) Draw the electron dot structure of potassium and chlorine. (b) Show the formation of KCl by transfer of electrons. (c) Name the ions present in the compound KCl.	3

28.	**CASE BASED QUESTION** Salts play a very important role in our daily life. Sodium chloride which is known as common salt is used in almost every kitchen. Baking soda is also a salt used in faster cooking as well as the baking industry. The family of salts is classified on the basis of cations and anions present in them. a) Identify the acid and base from which sodium chloride is formed. b) Find the cation and anion present in calcium sulphate. c) "Sodium chloride and washing soda both belong to the same family of salts." Justify this statement. OR d) Define the term pH scale. Name the salt obtained by the reaction of potassium hydroxide and sulphuric acid and give the pH of its aqueous solution.	4
29.	(i) What are hydrocarbons? Describe the one difference between saturated and unsaturated hydrocarbons giving one example each. (ii) Name the following compounds: I -$CH_3CH_2CH_2Br$, II- CH_3CH_2CHO (iii) What are soaps? Why are soaps not effective in hard water? (OR) (b)(i) Explain the versatile nature of carbon. Why does carbon form a large number of compounds? (ii) What is a homologous series? List any four characteristics of a homologous series.	5

(SECTION- C)

30.	 Four students A, B, C and D performed the experiment to determine the focal length of a concave mirror by obtaining the image of a distant tree on a screen. They measured the distances between the screen and the mirrors shown in the diagrams given below:- The correct value of image will be obtained by: - a) A b) B c) C d) D	1
31.	The danger signals installed at the top of tall buildings are red in colour. These can be easily seen from a distance because, among all other colours, the red light. (a) is scattered the most by smoke or fog. (b) is scattered the least by smoke or fog. (c) is absorbed the most by smoke or fog. (d) moves fastest in the air.	1

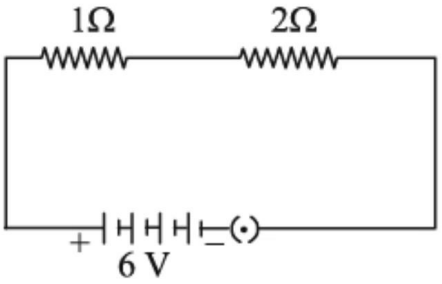
The following question consists of two statements – **Assertion (A) and Reason (R)**. Answer these questions by selecting the appropriate option given below.

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

B. Both Assertion (A) and Reason (R) are true, but Reason (R) is ***not*** the correct explanation of Assertion (A).

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

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

32.	**Assertion (A):** A point object is placed at a distance of 26 cm from a convex mirror of focal length 26 cm. The image will not form at infinity **Reason (R) :** For above given system the equation $1/f = 1/v + 1/u$ gives $v = \infty$	1
33.	An electric iron of 1000 W is used for 2 hours daily. Calculate the electrical energy consumed in one day and its cost if rate of 1 unit is ₹6. **OR** Two wires A and B are of equal length, different cross sectional areas and made of the same metal. (i) Name the property which is same for both the wires, (ii) Name the property which is different for both the wires.	2
34.	A ray of light passes from medium A into medium B. The angle of incidence in medium W is 60°, and the angle of refraction in medium B is 30°. Medium B is denser than medium A. Now the same ray is passed from medium A into another medium C, and the angle of refraction becomes 45°. a) Will the speed of the light be more in medium B or medium C? Explain why? b) Which medium is optically denser: B or C? Justify your answer.	2
35.	a) List two causes of hypermetropia. b) Draw ray diagrams showing (i) a hypermetropic eye and (ii) its correction using a suitable optical device.	3
36.	A. Show how you would connect three resistors, each of resistance 6Ω so that the combination has a resistance of (i)9Ω, (ii) 4Ω **OR** B. In the given circuit, calculate the power consumed in watts in the resistor of 2Ω.  	3
37.	A current carrying conductor is placed in a magnetic field. Now answer the following. i) List the factors on which the magnitude of force experienced by the conductor depends. ii) State the rule which helps in finding the direction of motion of the conductor. iii) If initially this force was acting from right to left how will the direction of force change if the: a) direction of magnetic field is reversed? b) direction of current is reversed?	3
38.	**CASE BASED QUESTION** Study the data given below showing the focal length of three concave mirrors A, B and C and the respective distances of objects placed in front of the mirrors:	4

Case	Mirror	Focal Length (cm)	Object Distance (cm)

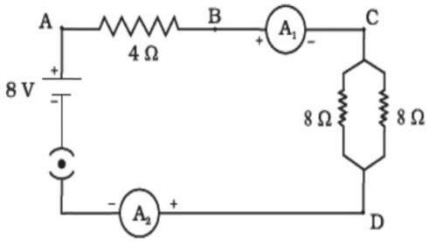
1	A	20	45
2	B	15	30
3	C	30	20

i) In which one of the above cases the mirror will form a diminished image of the object? Justify your answer.
ii) List two properties of the image formed in case 2.
iii) What is the nature and size of the image formed by mirror C? Draw a ray diagram to justify your answer.

OR

iv) An object is placed at a distance of 18 cm from the pole of a concave mirror of focal length 12cm. Find the position of the image formed in this case.

39.



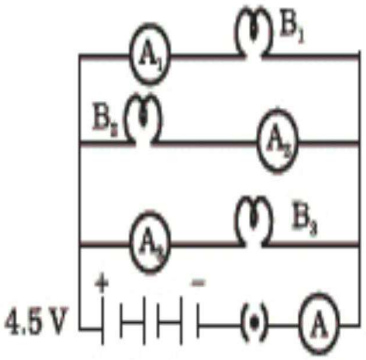
Find out the following in the electric circuit given in the Figure below:

(a) Effective resistance of two 8 Ω resistors in the combination
(b) Current flowing through 4Ω resistor
(c) Potential difference across 4Ω resistance
(d) Power dissipated in 4Ω resistor
(e) Difference in ammeter readings, if any

5

OR

B_1, B_2 and B_3 are three identical bulbs connected as shown in the Figure. When all the three bulbs glow, a current of 3A is recorded by the ammeter A.



i) What happens to the glow of the other two bulbs when the bulb B_1 gets fused?
ii) What happens to the reading of A_1, A_2, A_3 and A when the bulb B_2 gets fused?
(iii)How much power is dissipated in the circuit when all the three bulbs glow together?