



# NAVODAYA VIDYALAYA SAMITI, HYDERABAD

## REGION

### Term I Examination (2025-26)

**CLASS: X**

**SUBJECT : SCIENCE**

**Max Time: 3 hrs.**

**Max Marks: 80**

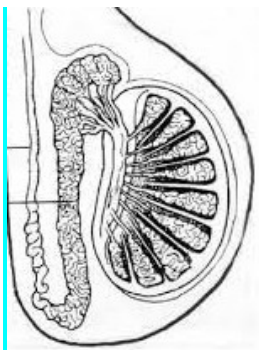
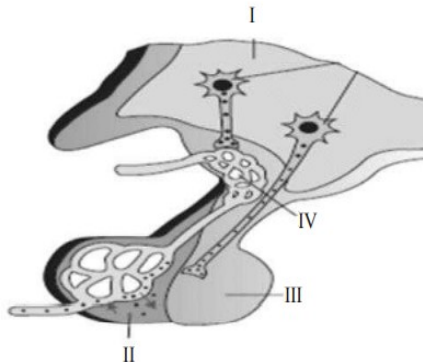
### SET- I

#### 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		
Q.No	Question	Marks
1	The excretory waste of plant is a) Carbondioxide b) Carbondi-oxide, oxygen, gum and resins c) Carbondi-oxide, water, oxygen, latex, gum and resins d) Carbondi-oxide, oxygen, latex, gum and resins	1
2	Which one of the following is correct combinations? a) Movement of sunflower towards light – negative phototropism b) Closing and opening of lotus flower- growth independent movement. c) Movement of tendrils coil around the support – growth independent movement d) Movement of <i>Mimosa pudica</i> in response to touch – growth dependent movement.	1
3	The organism breakdown the food materials outside the body is a) Yeast b) Mushroom	1

	c) Lactobacillus bacteria                      d) All the above are correct	
4	The centre associated with hunger is a separate part of a) cerebellum    b) cerebrum c) Medulla oblongata                                      d) Pineal body	1
5	Water absorption may take place in a) Large intestine & small intestine                      b) Only in large intestine c) Throughout the alimentary canal                      d) Small intestine only	1
6	Which one of the following animal blood is getting mixed a) Amphibian              b) Birds              c) Mammals              d) None of these	1
7	When we breathe in a) ribs lifted upwards, diaphragm flattened and the thoracic volume decreased b) ribs lifted upwards and diaphragm become dome shaped. c) ribs lifted upwards and diaphragm flattened and the thoracic volume increased. d) ribs move downward and flattened our diaphragm.	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	<b>Assertion A):</b> Impulse transmitted through the synapse is chemical. <b>Reason(R):</b> Because electrical impulses are slower than chemical.	1
9	<b>Assertion:</b> Hydra reproduces asexually by budding and sexually by gametes formation. <b>Reason:</b> They are unisexual animal.	1

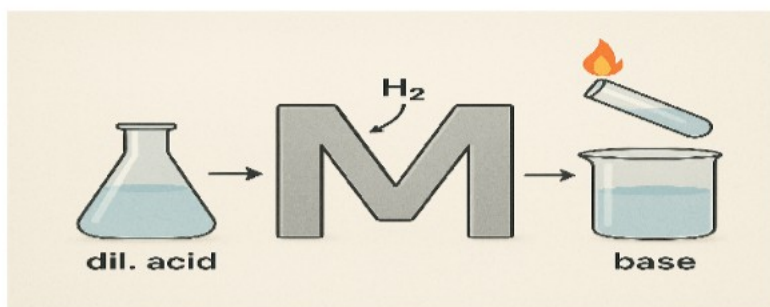
10	How do “muscle cell” and “plant cell” change their shape?	2
11	<p>Identify the following figure and trace out the function of the hormone produced by the organ.</p>  <p style="text-align: center;"><b>OR</b></p> <p>Observe the following figure and trace out the area marked as “II” and write its function.</p> 	2
12	How does adrenaline prepare the body to emergency situation?	2
13	Placenta is a special tissue in the embryonic developmental stage. Comment on the statement.	3

14	<p>Why the DNA copying mechanism is not absolutely accurate?</p> <p>What will happen if it is less accurate?</p> <div data-bbox="1136 163 1291 525"> </div> <p style="text-align: right;"><b>Mismatch occur</b></p>	3
15	<p>India's population is currently around 1.428 billion, making it the most populous country in the world. While India has made progress in reducing fertility rates through family planning programs, the population is still growing due to demographic momentum. To manage this growth, India employs various strategies including promoting family planning, improving access to contraceptives, and focusing on women's education and empowerment.</p> <p>Identify the contraceptive methods and find the merits and demerits it.</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>a)</p> </div> <div style="width: 50%;"> <p>b)</p> </div> <div style="width: 50%;"> <p>c)</p> </div> <div style="width: 50%;"> <p>d)</p> </div> </div> <p style="text-align: center;"><b>OR</b></p> <p>Name the organism and trace out the reproductive event.</p>	4





	Copper	Tin	Nickel	Cobalt	Iron	Zinc	
The table below gives the colour of the metal sulphate salt solutions.							
	Metal salt solution		Colour of aqueous metal salt solution				
	Copper sulphate		blue				
	Tin sulphate		yellow				
	Nickel sulphate		green				
	Cobalt sulphate		pink				
	Iron sulphate		green				
	Zinc sulphate		colourless				
Adding nickel and iron metal to which of the following solutions will show that iron is more reactive than nickel?							
A) Copper sulphate							



- (i) Write the name of gas 'G'.
- (ii) How will you test the presence of this gas ?
- (iii) Write chemical equation for the reaction of the metal with an acid

26 A white solid P on strong heating gives reddish brown gas Q and a residue R. Residue R is yellow when hot and white when cold. Identify P, Q & R

3

Write the chemical reaction involved and identify the type of chemical reaction.

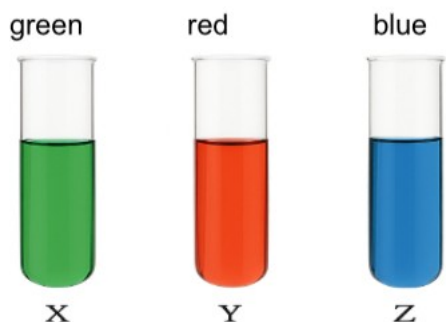
**OR**

A Compound A is used in the manufacture of cement. When dissolved in water, it evolves a large amount of heat and forms compound B.

- i) Identify A and B
- ii) Write chemical equation for the reaction of A with water
- iii) List two types of reaction in which the reaction may be classified.

27 On adding a few drops of universal indicator in three colourless solutions X, Y and Z taken separately in three test tubes, a student observed the changes in colour as green in X, red in Y and blue in Z.

3





	<p>(a) Arrange X, Y and Z in increasing order of their pH values.</p> <p>(b) Which one of the three X,Y and Z, will change the colour of phenolphthalein ? Why ?</p>	
28	<p>Read the passage and answer the questions based on the passage and related studied concepts</p> <p>The Iron pillar in Qutab Minar complex in Delhi was built 1600 years ago. It is still standing intact and shows no signs of rusting even today. This shows that the ancient metallurgists of India in those times had fully developed metallurgical processes as well as the techniques of protection of different metals. The protection of metals was done by several processes like coating of a thin film of another metal, alloying etc.</p> <p>a) Write the chemical name of the compound formed on corrosion of Iron.</p> <p>b) Write the forms in which iron ore is found in nature</p> <p>c) Explain any two methods that are employed to prevent Corrosion of metals</p> <p style="text-align: center;"><b>OR</b></p> <p>Why is Aluminium used to join railway track. Write a balanced chemical equation for the reaction which occur</p>	4
29	<p>29.A few crystals of ferrous sulphate were taken in a dry boiling tube and heated. Tiny droplets were observed in the test tube after sometime.</p>	5

## Action of heat on Ferrous sulphate crystals



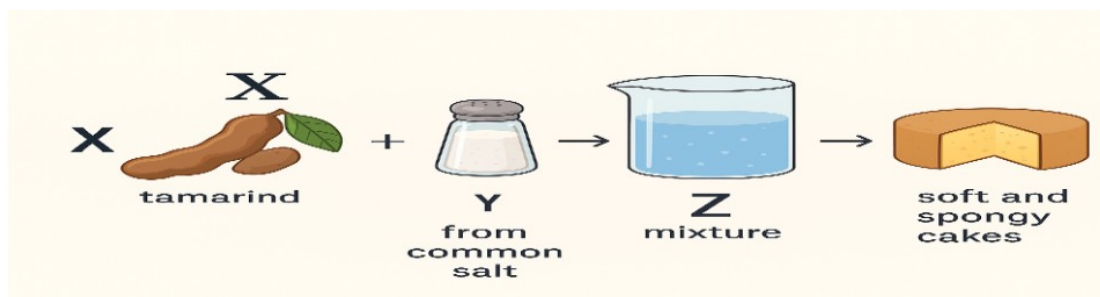
- From where did these water droplets appear.? Explain
- What colour change will be observed during heating.?
- How many molecules of water are attached per molecule of  $\text{FeSO}_4$  crystal.

Write the molecular formula of crystalline forms of i) Copper sulphate and ii) sodium carbonate

- State how is Plaster of Paris obtained from gypsum. Write two uses of Plaster of Paris.

**OR**

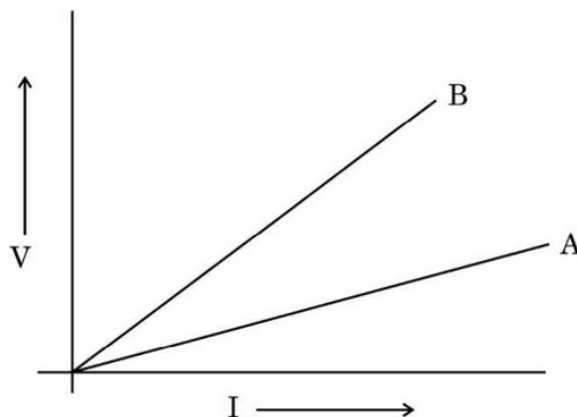
An acid 'X' present in tamarind when mixed with 'Y' produces a mixture 'Z'. 'Z' on addition to a dough when heated makes cakes soft and spongy. 'Y' is prepared from common salt and helps in faster cooking



- Write the Common names of X, Y and Z and chemical formula of

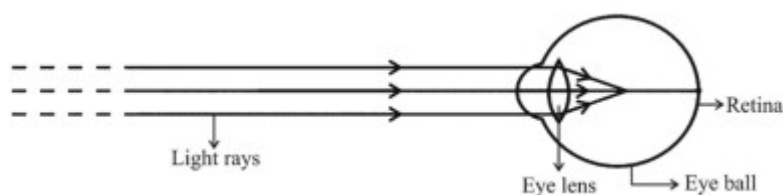
	<p>Y.</p> <p>(b) How is Y prepared and how does it help in making cakes soft and spongy. Illustrate the reaction with suitable chemical equation.</p> <p>(c) Write the name and chemical formula of a mild base other than Y used as an antacid.</p>	
	<b>SECTION C</b>	
30	<p>Which of the following mirror is used by a dentist to examine a small cavity in a patient's teeth?</p> <p>(A) Convex mirror (B) Concave mirror</p> <p>(C) Plane mirror (D) Any spherical mirror</p>	1
31	<p>The phenomena of light involved in the formation of rainbow are:</p> <p>(A) Refraction, reflection and dispersion</p> <p>(B) Refraction, dispersion and internal reflection</p> <p>(C) Reflection, dispersion and internal reflection</p> <p>(D) Refraction, dispersion, scattering and total internal reflection</p>	1
<p><b>Assertion-reason Question:</b> there are two statements- Assertion (A) and reason (R) in each question. Answer these questions by selecting the most suitable options given below:</p> <p>(A) Both A and R are true and R is the correct explanation of A</p> <p>(B) Both A and R are true and R is not the correct explanation of A</p> <p>(C) A is true but R is false</p> <p>(D) A is false but R is true</p>		
32	<p><b>Assertion (A):</b> A ray of light passing through the centre of curvature of a concave mirror retraces its path after reflection.</p> <p><b>Reason (R):</b> A ray of light passing through the centre of curvature of a spherical mirror is incident normally on the surface of the mirror.</p>	1
33	<p>V-I graph for two conducting wires A and B are as shown. If both wires are of the same length and same diameter, which of the two is made of a</p>	2

material of high resistivity? Give reasons to justify your answer.



34 (A) Observe the following diagram and answer the questions following it :

2



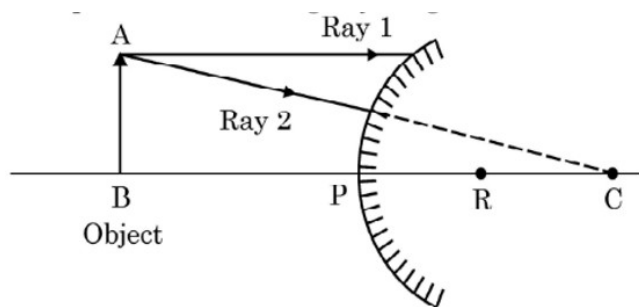
- (i) Identify the defect of vision shown.
- (ii) List its two causes.
- (iii) Name the type of lens used for the correction of this defect.

**OR**

(B) The colour of clear sky from the earth appears blue but from the space it appears black. Why ?

35 (a) Complete the following ray diagram to show the formation of image:

3



- (b) Mention the nature, position and size of the image formed in this case.
- (c) State the sign of the image distance in this case using the Cartesian

	sign convention.	
36	<p>Give reasons for the following</p> <p>(a) Danger signals installed at airports and at the top of tall buildings are of red colour.</p> <p>(b) We prefer a convex mirror as a rear-view mirror in vehicle</p> <p>(c) The path of a beam of light passing through a colloidal solution is visible.</p>	3
37	<p>A student has focused the image of an object of height 3 cm on a white screen using a concave mirror of focal length 12 cm. If the distance of the object from the mirror is 18 cm, find the values of the following:</p> <p>(i) Distance of the image from the mirror</p> <p>(ii) Height of the image</p>	3
38	<div data-bbox="516 722 1083 1016" data-label="Image"> <p>The diagram shows a concave mirror with its reflecting surface on the left. Parallel rays of light from the left are reflected and converge at a point labeled 'F' on the principal axis, which is labeled 'Principal Focus'. The center of curvature is labeled 'O'. The principal axis is a horizontal line passing through the center of the mirror and the focus.</p> </div> <p>Hold a concave mirror in your hand and direct its reflecting surface towards the sun. Direct the light reflected by the mirror onto a white card-board held close to the mirror. Move the card-board back and forth gradually until you find a bright, sharp spot of light on the board. This spot of light is the image of the sun on the sheet of paper; which is also termed as "Principal Focus" of the concave mirror.</p> <p>(a) List two applications of concave mirrors.</p> <p>(b) If the distance between the mirror and the principal focus is 15 cm, find the radius of curvature of the mirror.</p> <p>(c) Draw a ray diagram to show the type of image formed when an object is placed between the pole and focus of a concave mirror.</p> <p style="text-align: center;"><b>OR</b></p> <p>(c) An object 10 cm in size is placed at 100 cm in front of a concave mirror. If its image is formed at the same point where the object is located, find:</p> <p>(i) focal length of the mirror, and</p> <p>(ii) magnification of the image formed with sign as per Cartesian sign convention.</p>	4

39	<p>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:</p> <table border="1"><thead><tr><th>Case</th><th>Mirror</th><th>Focal Length(cm)</th><th>Object Distance(cm)</th></tr></thead><tbody><tr><td>1</td><td>A</td><td>20</td><td>45</td></tr><tr><td>2</td><td>B</td><td>25</td><td>30</td></tr><tr><td>3</td><td>C</td><td>30</td><td>20</td></tr></tbody></table> <p>(i) In which one of the above cases the mirror will form a diminished image of the object? Justify your answer.</p> <p>(ii) List two properties of the image formed in case 2.</p> <p>(iii) What is the nature and size of the image formed by mirror C? Draw ray diagram to justify your answer.</p> <p style="text-align: center;"><b>OR</b></p> <p>(iii) An object is placed at a distance of 18 cm from the pole of a convex mirror of focal length 12 cm. Find the position of the image formed in this case.</p>	Case	Mirror	Focal Length(cm)	Object Distance(cm)	1	A	20	45	2	B	25	30	3	C	30	20	5
Case	Mirror	Focal Length(cm)	Object Distance(cm)															
1	A	20	45															
2	B	25	30															
3	C	30	20															