



## INDIAN SCHOOL DARSAIT

MID TERM EXAMINATION, SEPTEMBER-2017

### Sample Question Paper

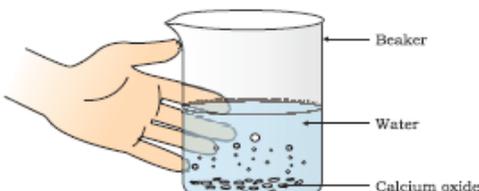
### SCIENCE (086)

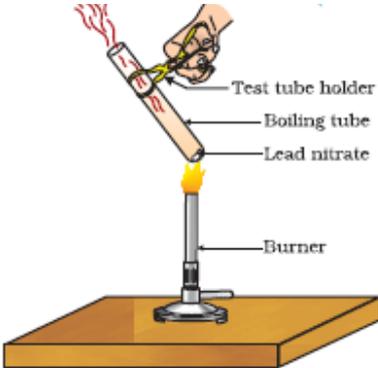
Class: X

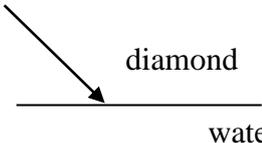
Max. Marks: 80

Date: 30-08-2017

Time: 3 hours

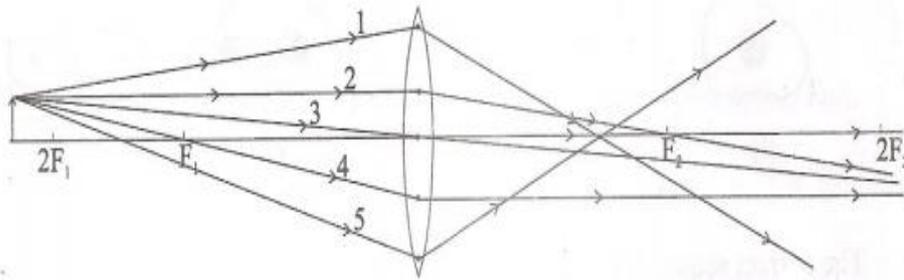
	<p><b>General Instructions:</b></p> <p>i) <i>The question paper comprises of two sections A and B.</i></p> <p>ii) All questions are compulsory.</p> <p>iii) Questions <b>1</b> and <b>2</b> are very short answer questions and carry <b>1</b> mark each.</p> <p>iv) Questions <b>3</b> to <b>5</b> are short answer questions and carry <b>2</b> marks each.</p> <p>v) Questions <b>6</b> to <b>14</b> are long answer questions and carry <b>3</b> marks each.</p> <p>vi) Question number <b>15</b> is a value based question of three marks.</p> <p>vii) Questions <b>16</b> to <b>21</b> are long answer questions and carry <b>5</b> marks each.</p> <p>viii) Question number <b>22</b> to <b>27</b> are practical based questions and carry <b>2</b> marks each.</p>	
	<b>Section A</b>	
1	A girl was playing with a thin beam of light from her laser torch by directing it from different directions on a convex lens held vertically. She was surprised to see that in a particular the beam of light continues to move along the same direction after passing through the lens. State the reason for this observation.	1
2	Why is the breathing rate of aquatic organisms higher than the terrestrial organisms?	1
3	 <p>(a) Write a balanced chemical equation involved in the above reaction.</p> <p>(b) Write one use of the solution of the product formed in the above reaction.</p>	2
4	(a) Why are bags of chips flushed with nitrogen gas? (b) Identify the reducing agent and oxidizing agent in the following reactions. (i) $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$ (ii) $\text{Fe}_2\text{O}_3 + 3\text{CO} \rightarrow 2\text{Fe} + 3\text{CO}_2$	2

5	Brief the steps in the urine formation. State the main role of tubules in urine formation.	2
6	<p>Observe the following figure and answer the questions.</p>  <p>a) Identify the type of reaction. b) Write a balanced chemical equation for the reaction. c) What are the gaseous products formed in this reaction</p>	3
7	<p>(a) A metal compound reacts with dilute hydrochloric acid .The gas evolved here extinguishes a burning candle. What is this metal compound? The other product formed here is <math>MgCl_2</math>. Write the chemical equation involved here. (b) What is the commercial name of calcium sulphate hemi hydrate?</p> <p style="text-align: center;"><b>(OR)</b></p> <p>(a) A white powdery substance having strong smell of chlorine is used for disinfecting water. Identify the substance. Give its chemical name and write the chemical equation for its preparation. (b) Write the name and formula of one salt each which contains: (i) two molecules of water of crystallisation. (ii) five molecules of water of crystallisation.</p>	3
8	<p>(a) What are amphoteric oxides? Give two examples. Also write equations that show the amphoteric nature of any one oxide. (b) Show the formation of Magnesium chloride by the transfer of electrons.</p>	3
9	Write the two steps involved in the breakdown of glucose in our muscles in case of lack of oxygen.	3
10	<p>(a) What is the function of ozone in the upper atmosphere? (b) Write any three characteristics of a food chain. (c) Define biomagnification. Which trophic level will exhibit the highest concentration of the pesticides applied to the crops?</p>	3
11	<p>Name the following: (a) The gland which secreted hormones and digestive juices or enzymes. (b) The gland associated with brain.</p>	3

	<p>(c) The gland associated with kidneys.  (d) The gland/organ involved in the secretion of estrogen and progesterone.</p> <p style="text-align: center;">(OR)</p> <p>(a) Explain tropism.  (b) Why does a plant bend towards sunlight?</p>	
12	<p>Draw a ray diagram to show the formation of image of an object placed in front of a convex mirror. List two characteristics of the image formed. Briefly explain one use of convex mirrors.</p>	3
13	<p>(a) Define absolute refractive index.  (b) A ray of light is incident on the interface separating diamond and water. Given that refractive index of diamond and water with respect to air are 2.42 and 1.33 respectively, complete the diagram by showing refracted ray and mark angle of incidence and refraction.</p> <div style="text-align: center;">  <p style="margin-left: 100px;">diamond</p> <hr style="width: 150px; margin: 0 auto;"/> <p style="margin-left: 100px;">water</p> </div> <p>(c) Find refractive index of water with respect to diamond.</p>	3
14	<p>Name the phenomenon responsible for the early sunrise and delayed sunset. Explain with the help of a diagram the reason why the sun is visible to us about 2 minutes before the actual sun-rise and about 2 minutes after the actual sunset.</p>	3
15	<p>Four friends went to a picnic. The weather was pleasant. They played various games. Suddenly, Shyam noticed seven colours in the sky. He said to others, “Wow, what a rainbow!” Then Ram asked him, “what is rainbow”? He then explained to all about its formation. After that everyone in the group thanked him for the knowledge, he had given to them.</p> <p>(a) What is the moral value which is shown by Shyam? (any 2)  (b) If Shyam was facing the rainbow, then where was the sun?  (c) Which device can be used to obtain such a phenomenon?</p>	3
16	<p>(a) When the concentrated aqueous solution of substance X is electrolysed, then NaOH, Cl<sub>2</sub> and H<sub>2</sub> are produced. Name the substance X. What is the special name of this process? Also write a balanced chemical equation for this process.</p> <p>(b) A farmer has found that pH of soil in his fields is 4.2. Name any two chemical material that he can mix with the soil to adjust the pH.</p> <p>(c) Name the sodium compound used to remove the permanent hardness of water.</p>	5
17	<p>(a) Explain electrolytic refining of copper with the help of a neat labelled diagram.  (b) Hydrogen gas is not evolved when a metal reacts with nitric acid. Why?  (c) Ionic compounds do not conduct electricity in the solid state. Give reason.  (d) List any one difference between calcination and roasting.</p>	5

18	<p>(a) Write the function of each of the following parts of the human eye:</p> <ul style="list-style-type: none"> <li>(i) Cornea</li> <li>(ii) Iris</li> <li>(iii) Eye lens</li> <li>(iv) Ciliary muscles</li> <li>(v) Retina</li> </ul> <p>(b) A person is unable to see distinctly the object closer than 1m. Name the defect of vision he is suffering from. Draw ray diagrams to illustrate the cause of the defects and its correction by suitable lens.</p>	5																					
19	<p>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:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>S.NO.</th> <th>OBJECT DISTANCE (u)</th> <th>IMAGE DISTANCE (v)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>-60</td> <td>+12</td> </tr> <tr> <td>2.</td> <td>-30</td> <td>+15</td> </tr> <tr> <td>3.</td> <td>-20</td> <td>+20</td> </tr> <tr> <td>4.</td> <td>-15</td> <td>+30</td> </tr> <tr> <td>5.</td> <td>-12</td> <td>+60</td> </tr> <tr> <td>6.</td> <td>-9</td> <td>+90</td> </tr> </tbody> </table> <p>(a) What is the focal length of the convex lens? State reason for your answer.  (b) For what object distance (u) is the corresponding image distance (v) is not correct? How did you arrive at the conclusion?  (c) Choose an appropriate scale to draw diagram for the observation at S.NO.4 and find the approximate value of magnification.</p> <p style="text-align: center;"><b>(OR)</b></p> <p>(a) Define the following terms in the context of spherical mirrors:  (i) pole  (ii) centre of curvature  (i) Radius of curvature  (ii) Principal axis  (b) Draw ray diagram to show the principal focus of (i) a concave mirror, and (ii) a convex mirror  (c) In the following diagram, MM' is a concave mirror and AB is an object. Draw on your answer sheet a ray diagram to show the formation of image of this object.</p>	S.NO.	OBJECT DISTANCE (u)	IMAGE DISTANCE (v)	1.	-60	+12	2.	-30	+15	3.	-20	+20	4.	-15	+30	5.	-12	+60	6.	-9	+90	5
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20	<p>(a) Describe double circulation in man and state its importance.</p> <p>(b) What is the role of bile in the digestion of food?</p> <p>(c) State the final products formed in the process of digestion of food.</p>	5
21	<p>(a) Explain the importance of reflex arc in animals.</p> <p>(b) In our nerve cell.</p> <p>(i) Where is information received?</p> <p>(ii) Through what information travel as an impulse?</p> <p>(iii) Where is the information converted to chemical signal for outward transmission?</p> <p>(c) How is movement of leaves of touch- me- not plant and the movement of growth of stem towards light differ?</p>	5
<b>Section B</b>		
22	<p>A solution of barium chloride when mixed with sodium sulphate solution, an insoluble white substance is formed.</p> <p>(i) Translate the above statement into a chemical equation.</p> <p>(ii) Identify the types of reaction involved in it.</p>	2
23	<p>(a) You have two solutions, A and B. The pH of solution A is 6 and pH of solution B is 10. Which solution has more hydrogen ion concentration? Also write the nature of solutions A and B.</p> <p>(b) Write any one application of pH in our everyday life.</p>	2
24	<p>Trace the path of a ray of light incident at an angle of <math>45^\circ</math> on a rectangular glass slab. Write the measure of the angle of refraction, the angle of emergence and the lateral displacement suffered by the ray as it passes through the slab.</p>	2
25	<p>Out of the five incident rays shown in the figure find the three rays that are obeying the laws of refraction and may be used for locating the position of the image formed by a convex lens. Justify your answer.</p>	2



26	Draw the experimental set up to demonstrate the process of respiration and label its parts.	2
27	Mention any two precautions that should be taken while preparing the temporary mount of a leaf peel.	2