# IDEAL INDIAN SCHOOL, DOHA-QATAR
## TERM I EXAMINATION, OCTOBER 2023
**SCIENCE (086)**
**SET- 1**

**Class: X** **Max Marks: 80**
**Date:05/10/2023** **Duration: 3 hours**

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General Instructions:

i. *This question paper consists of 39 questions in 5sections.*
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.*
iii. ***Section A** consists of 20 objective type questions carrying 1 mark each.*
iv. ***Section B** consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50words.*
v. ***Section C** consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80words*
vi. ***Section D** consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120words.*
vii. ***Section E** consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.*

**SECTION–A**

Select and write one most appropriate option out of the four options given for each of the questions1–20

| Q.No | Questions | Marks |
|---|---|---|
| 1 | Which among the following is(are) double displacement reactions?<br>i) $Pb + CuCl_2 \longrightarrow PbCl_2 + Cu$<br>ii) $Na_2SO_4 + BaCl_2 \longrightarrow BaSO_4 + 2NaCl$<br>iii) $C + O_2 \longrightarrow CO_2$<br>iv) $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$<br>a) (i) and iv) b) (ii) only<br>c) (i) and (ii) d) (iii) and (iv) | 1 |
| 2 | The equation where the number of atoms of each element on both the sides of a chemical equation are not equal is called ……<br>a) unit of crystallization b) skeletal equation<br>c) balanced equation d) complete equation | 1 |
| 3 | Which of the following solutions will turn phenolphthalein pink?<br>a) HCl(aq) b)$CO_2$(aq)<br>c) NaOH(aq) d) $H_2SO_4$(aq) | 1 |

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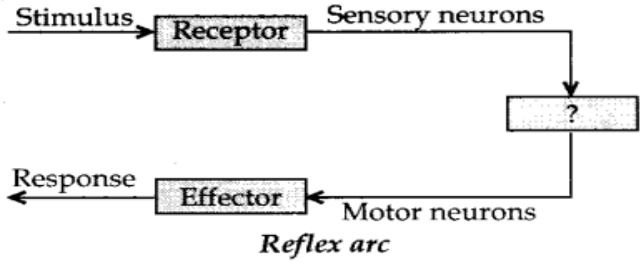
| 4 | The acid having highest hydrogen ion concentration is one with<br>a) $P^H$=2.5 b) $P^H$=1.8<br>c) $P^H$=7 d) $P^H$=10 | 1 |
| 5 | Which of the following non metals is a liquid?<br>a) carbon b) bromine<br>c) phosphorus d) sulphur | 1 |
| 6 | Name two metals which react with very dilute $HNO_3$ to evolve $H_2$ gas.<br>a) Na and K b) Mg and Mn<br>c) Fe and Zn d) Cu and Ag | 1 |
| 7 | What is the commercial name of calcium sulphate hemihydrate?<br>a) gypsum b) plaster of paris<br>c) bleaching powder d) washing soda | 1 |
| 8 | A gland not associated with the alimentary canal is<br>a) liver b) salivary glands<br>c) pancreas d) adrenal | 1 |
| 9 | The breakdown of pyruvate to give carbon dioxide, water and energy takes place in<br>a) cytoplasm b) mitochondria<br>c) chloroplast d) nucleus | 1 |
| 10 | The autotrophic mode of nutrition requires<br>a) carbon dioxide and water b) chlorophyll<br>c) sunlight d) all of the above | 1 |
| 11 | Which part of the alimentary canal receives bile from the liver?<br>a) stomach b) small intestine<br>c) large intestine d) oesophagus | 1 |
| 12 |  *Reflex arc*<br>Give the missing term.<br>a) Spinal cord b) Brain<br>c) Cranial nerves d) Relay nerves | 1 |
| 13 | When an animal is cut into pieces and each piece grows into a complex organism. What is the process.<br>a) budding b) fragmentation<br>c) spore formation d) regeneration | 1 |
| 14 | Name the method by which spirogyra reproduce under favourable conditions .<br>a) regeneration b) multiple fission<br>c) fragmentation d) vegetative propagation | 1 |

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| 15 | Blue color of the sky is due to the phenomenon of:<br>a) Reflection of light b) Refraction of light<br>c) Dispersion of light d) Scattering of light | 1 |
| 16 | The outer surface of a hollow sphere of aluminum is used as a mirror. The radius of the sphere is 50cm. What will be the focal length of this mirror?<br>a) +0.25cm b) -0.25cm<br>c) +25cm d) -25cm | 1 |
| | Question No 17 to 20 consist of two statements –Assertion (A) and reason (R). Answer these questions selecting the appropriate option given below:<br><br>A. Both A and R are true and R is correct explanation of the assertion A.<br>B. Both A and R are true but R is not the correct explanation of the assertion A<br>C. A is true but R is false.<br>D. A is false but R is true | |
| 17 | **Assertion (A)**: Zinc can easily displace copper on reacting with a solution of copper sulphate.<br>**Reason(R)**: Copper is more reactive metal than zinc. | 1 |
| 18 | **Assertion (A)**: Units that make up the nervous system are called neurons.<br>**Reason(R):** Nerve impulses are carried by dendrites towards the cell body. | 1 |
| 19 | **Assertion (A):** Reproduction helps in providing stability to populations of species.<br>**Reason(R)**: Reproduction is a process by which organisms increase their population. | 1 |
| 20 | **Assertion (A)**: A ray of light travelling from a rarer medium to a denser medium slows down and bends away from the normal. When it travels from a denser medium to a rarer medium it speeds up and bends towards the normal<br>**Reason (R)**: The speed of light is higher in a rarer medium than a denser medium. | 1 |
| | **SECTION–B**<br>Q.no. 21 to 26 are very short answer questions | |
| 21 | Identify the substance oxidised, substance reduced, oxidizing agent and reducing agent in the given equation.<br>$MnO_2 + 4HCl \longrightarrow MnCl_2 + 2H_2O + Cl_2$ | 2 |
| 22 | a) How do leaves of plants help in excretion?<br>b) What will happen if mucus is not secreted by the gastric gland?<br>**OR**<br>Write any two common features of respiratory organs of animals. | 2 |
| 23 | a) Write anyone function of thyroxine hormone.<br>b) Why is the use of iodized salt advised to us? | 2 |

<table>
<tr><td>24</td><td>Illustrate the following with the help of suitable diagrams.<br>a) Spore formation in Rhizopus b) Multiple fission in plasmodium</td><td>2</td></tr>
<tr><td>25</td><td>When light enters from air to glass having refractive index 1.50, What is the speed of light in that glass?<br>OR<br>The refractive indices of three media are given below:<table><tr><th>Medium</th><th>Refractive Index</th></tr><tr><td>A</td><td>1.8</td></tr><tr><td>B</td><td>2.0</td></tr><tr><td>C</td><td>1.5</td></tr></table>A ray of light is travelling from A to B and another is travelling from B to C.<br>In which of the two cases the refracted ray bends towards the normal. Give reason for your answer.</td><td>2</td></tr>
<tr><td>26</td><td>What is a rainbow? Describe the formation of rainbow using a labelled diagram.</td><td>2</td></tr>
<tr><td colspan="3">SECTION–C<br>Q.no.27 to 33 are short answer questions.</td></tr>
<tr><td>27</td><td>i) Balance the following chemical equations:<br>a) $HNO_3 + Ca(OH)_2 \longrightarrow Ca(NO_3)_2 + H_2O$<br>b) $Fe_2O_3 + Al \longrightarrow Al_2O_3 + Fe$<br>ii) Why are decomposition reactions are called the opposite of combination reactions?</td><td>3</td></tr>
<tr><td>28</td><td>a) Write the chemical formula, chemical name and the preparation method of bleaching powder.<br>b) How is the concentration of hydronium ions ($H_3O^+$) affected, when a solution of an acid is diluted?<br>OR<br>i) Why do HCl, $HNO_3$, etc. show acidic characters in aqueous solutions while solutions of compound like alcohol and glucose do not show acidic character?<br>ii) Give one important use of washing soda and baking soda.</td><td>3</td></tr>
<tr><td>29</td><td>Explain vegetative propagation with the help of two examples. List any two advantages of vegetative propagation.</td><td>3</td></tr>
<tr><td>30</td><td>a) How is brain protected from injury and shock?<br>b) Name two main parts of hindbrain and state the function of each.</td><td>3</td></tr>
<tr><td>31</td><td>A concave mirror has a focal length of 20cm. An object of height 4cm is placed 60cm in front of the mirror such that an image is obtained. Calculate the image distance and the size of the image obtained<br>OR<br>Manju uses a concave mirror for image formation for different positions of an object. What inferences can be drawn about the following when an object is placed at a distance of 10 cm from the pole of a concave mirror of focal length 15 cm?</td><td>3</td></tr>
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<tr><td></td><td>a) Position of the image<br>b) Size of the image<br>c) Nature of the image</td><td></td></tr>
<tr><td>32</td><td>A person is not able to see distinctly an object placed beyond 50cm from him. Name his condition and its correction. Also state the causes of this defect. Represent the corrected eye with help of a diagram.</td><td>3</td></tr>
<tr><td>33</td><td>(i) State Snell’s law<br>(ii) Draw a ray diagram showing refraction through a glass slab<br>(iii) Give one example of refraction from our daily life experience</td><td>3</td></tr>
<tr><td colspan="3">SECTION–D<br>Q.no.34 to36 are Long answer questions.</td></tr>
<tr><td>34</td><td>a) Of the three metals X, Y and Z: X reacts with cold water, Y with hot water and Z with steam only. Identify X, Y and Z and also write the chemical reactions involved for the same.<br>b) Why do metals not evolve hydrogen gas with nitric acid? Explain.<br>OR<br>a) Samples of four metals A, B, C and D were taken and added to the following solution one by one. The results obtained have been tabulated as follows:
<table>
<tr><th>Metal</th><th>Iron (II) sulphate</th><th>Copper (II) sulphate</th><th>Zinc sulphate</th><th>Silver nitrate</th></tr>
<tr><td>A</td><td>No reaction</td><td>Displacement</td><td></td><td></td></tr>
<tr><td>B</td><td>Displacement</td><td></td><td>No reaction</td><td></td></tr>
<tr><td>C</td><td>No reaction</td><td>No reaction</td><td>No reaction</td><td>Displacement</td></tr>
<tr><td>D</td><td>No reaction</td><td>No reaction</td><td>No reaction</td><td>No reaction</td></tr>
</table>
Use the table above to answer the following questions about metals A, B, C and D.<br>i) Which is the most reactive metal?<br>ii) What would you observe if B is added to a solution of copper (II) sulphate?<br>iii) Arrange the metals A, B, C and D in the order of decreasing reactivity.<br>b) Define the term malleable and ductile.</td><td>5</td></tr>
<tr><td>35</td><td>a) List the three events that occurs during the process of photosynthesis. Explain the role of stomata in this process.<br>b) Describe any experiment to show that sunlight is essential for photosynthesis.<br>OR<br>a) Draw a diagram depicting human digestive system and label on it: Gallbladder, Liver and Pancreas .<br>b) State the role of liver and pancreas in digestion process .</td><td>5</td></tr>
<tr><td>36</td><td>a) The value of magnification is -1. What does it mean?<br>b) An object 6cm in length is held 60cm away from a converging lens of focal length 15cm. Draw the ray diagram, find the position, size and nature magnification of the image formed.</td><td>1+4</td></tr>
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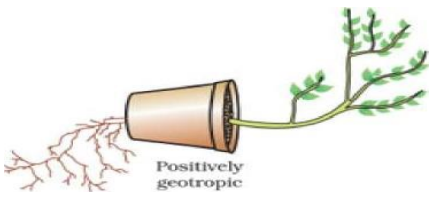
| | **OR**<br>a) Define the optical center of a lens.<br>b) Define 1 Dioptre.<br>c) A doctor has prescribed a corrective lens of power +1.5D to patient A and -5.5D to patient B. Are these converging or diverging lens? Find the focal length of the lenses. | 1+1+3 |
| **SECTION–E**<br>Q.no. 37 to 39 are case - based/data -based questions with 2 to 3 short sub parts. Internal choice is provided in one of these sub-parts. | | |
| 37 | Metal oxides are basic in nature. But some metal oxides, such as aluminium oxide, zinc oxide, etc., show both acidic as well as basic behaviour. Such metal oxides which react with both acids as well as bases to produce salts and water are known as amphoteric oxides.Most metal oxides are insoluble in water but some of these dissolve in water to form alkalis.<br>1. Write a chemical reaction of Aluminium when burnt in air?<br>2. Give a example of amphoteric oxide with reaction.<br>3. Why potassium and sodium is kept under the kerosene oil?<br>4.Which one of metal oxides are soluble in water and form alkalis?<br>a) sodium oxide b)aluminum oxide<br>c)mercuric oxide d)copper oxide | 4 |
| 38 | Read the text carefully and answer the questions:<br>Environmental triggers such as light, or gravity will change the directions that plant parts grow in. These directional, or tropic, movements can be either towards the stimulus or away from it. So, in two different kinds of phototropic movement, shoots respond by bending towards light while roots respond by bending away from it. Plants show tropism in response to other stimuli as well. The roots of a plant always grow downwards while the shoots usually grow upwards and away from the earth. This upward and downward growth of shoots and roots, respectively, in response to the pull of earth or gravity, is, obviously, geotropism. If 'hydro' means water and 'chemo' refers to chemicals, 'Hydrotropism 'means the movement of plants in response to water ,and chemotropism means the movement of plants in response to chemical stimuli. One example of chemotropism is the growth of pollen tubes towards ovules.<br>  <br><br>(i)Where does positive geotropism occur in plants?<br>(ii) Phototropism in shoots is attributed due to which plant hormone?<br>(iii)List the sequence of events that occur when a plant is exposed to unidirectional light, leading to bending of a growing shoot.<br>**OR**<br>(iii)What is chemotropism and write one example of chemotropism? | 1+1+2 |

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| 39 | Concave mirror forms image of an object thrice in its size on a screen.<br>Magnification of a mirror gives information about the size of the image relative to the object. It is defined as the ratio of size of image to the size of object. It is represented by m.<br>Size of image m= Size of obiect<br>Sign of magnification by mirror gives the information about the nature of the image produce by it.<br>(i) Describe the nature of image formed.<br>(ii) If the focal length and object distance from the pole of mirror are 5cm and 10cm respectively, then find image distance from the pole.<br>(iii) Give one use of concave mirror.<br>(iv) If the radius of curvature of mirror is R and the focal length is f, then write the relation between the two.<br>**OR**<br>(iv)If the radius of curvature of mirror is R, then write the relation between object distance, image distance and focal length of the mirror. | 4 |

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