



INDIAN SCHOOL AL WADI AL KABIR



DEPARTMENT OF SCIENCE

Sample Question Paper 5(TERM – I)

2021-22

Class X

Science (086)

Time: 90 Minutes

General Instructions:

1. The Question Paper contains three sections.
2. Section A has 24 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 12 questions. Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

**SECTION -
A**

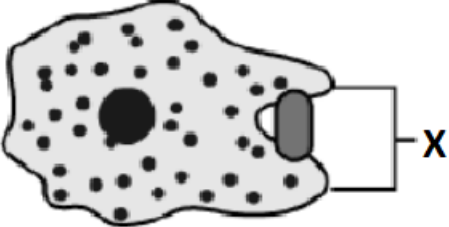
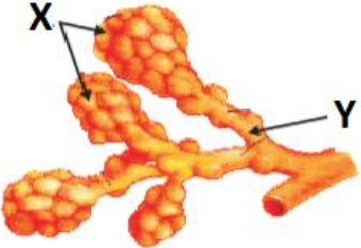
Section – A consists of 24 questions. Attempt any 20 questions from this section.

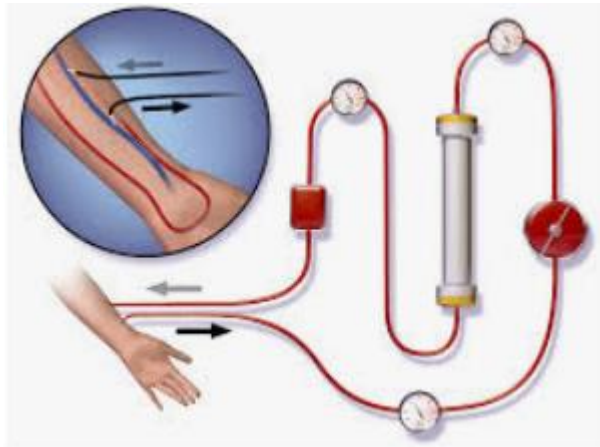
The first attempted 20 questions would be evaluated.

1.	In the balanced equation - $a\text{Fe}_2\text{O}_3 + b\text{H}_2 \rightarrow c\text{Fe} + d\text{H}_2\text{O}$ The value of a, b, c, d are respectively - (A) 1,1,2,3 (B) 1,1,1,1 (C) 1,3,2,3 (D) 1,2,2,3
2.	$\text{AgNO}_3(\text{aq}) + \text{NaCl}(\text{aq}) \rightarrow \text{AgCl}(\text{s}) + \text{NaNO}_3(\text{aq})$ Above reaction is a - (A) precipitation reaction (B) double displacement reaction (C) combination reaction (D) (A) and (B) both
3.	Three beakers labelled as A, B and C each containing 25 ml of water were taken. A small amount of NaOH, anhydrous CuSO_4 and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solution contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement(s) is (are) correct? (i) In beakers A and B, exothermic process has occurred. (ii) In beakers A and B, endothermic process has occurred. (iii) In beaker C exothermic process has occurred.

	(iv) In beaker C endothermic process has occurred. (A) (i) only (B) (ii) only (C) (i) and (iv) (D) (iv), (ii) and (iii)										
4.	A teacher gave two test tubes to the students, one containing water and the other containing sodium hydroxide. She asked them to identify the test tube containing sodium hydroxide solution. Which one of the following can be used for the identification? (A) Blue litmus (B) Red litmus (C) Sodium carbonate solution (D) Dilute hydrochloric acid										
5.	The pH of three solutions X, Y and Z is 6, 4 and 8 respectively. Which of the following is the correct order of acidic strength? (A) $X > Y > Z$ (B) $Z > Y > X$ (C) $Y > X > Z$ (D) $Z > X > Y$										
6.	Match the chemical substances given in Column (A) with their appropriate application given in Column (B). <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Column I</th> <th style="width: 50%; text-align: center;">Column II</th> </tr> </thead> <tbody> <tr> <td>(A) Bleaching powder</td> <td>(i) Preparation of glass</td> </tr> <tr> <td>(B) Baking soda</td> <td>(ii) Production of H_2 and Cl_2</td> </tr> <tr> <td>(C) Washing soda</td> <td>(iii) Decolourisation</td> </tr> <tr> <td>(D) Sodium chloride</td> <td>(iv) Antacid</td> </tr> </tbody> </table> <p>(A) A-(ii), B-(i), C-(iv), D-(iii) (B) A-(iii), B-(ii), C-(iv), D-(i) (C) A-(iii), B-(iv), C-(i), D-(ii) (D) A-(ii), B-(iv), C-(i), D-(iii)</p>	Column I	Column II	(A) Bleaching powder	(i) Preparation of glass	(B) Baking soda	(ii) Production of H_2 and Cl_2	(C) Washing soda	(iii) Decolourisation	(D) Sodium chloride	(iv) Antacid
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(A) Bleaching powder	(i) Preparation of glass										
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7.	<p>Which of the following pairs will give displacement reactions?</p> <p>(A) FeSO₄ solution and Copper metal (B) AgNO₃ solution and Copper metal (C) CuSO₄ solution and Silver metal (D) NaCl solution and Copper metal</p>						
8.	<p>Aluminum is used for making cooking utensils. Which of the following properties of Aluminum are responsible for the same?</p> <p>(a) Good thermal conductivity (b) Good electrical conductivity (c) Ductility (d) High melting point</p> <p>(A) (a) & (b) (B) (a) & (c) (C) (b) & (c) (D) (a) & (d)</p>						
9.	<p>Generally, metals react with acids to give salt and hydrogen gas. Which of the given acids does not give hydrogen gas on reacting with metals (except Mn and Mg)?</p> <p>(A) H₂SO₄ (B) HCl (C) HNO₃ (D) All the these</p>						
10.	<p>The electronic configurations of three elements X, Y and Z are X – 2, 8; Y – 2, 8, 7 and Z – 2,8,2. Which of the given is correct?</p> <p>(A) X is a metal (B) Y is a metal (C) Z is a non-metal (D) Y is a non-metal & Z is a metal</p>						
11.	<p>During vigorous physical exercise, lactic acid is formed from glucose inside the muscle cells because</p> <p>(A) there is lack of oxygen (B) there is lack of water (C) there is excess of carbon dioxide (D) none of the above</p>						
12.	<p>Study the table below and select the row that has correct information.</p> <table border="1" data-bbox="302 1730 1230 1919"> <thead> <tr> <th data-bbox="302 1730 764 1793">BODY FLUID</th> <th data-bbox="764 1730 1230 1793">CONTENTS</th> </tr> </thead> <tbody> <tr> <td data-bbox="302 1793 764 1856">(A) Blood</td> <td data-bbox="764 1793 1230 1856">plasma + RBC+ WBC+ platelets</td> </tr> <tr> <td data-bbox="302 1856 764 1919">(B) Plasma</td> <td data-bbox="764 1856 1230 1919">Blood -- RBC</td> </tr> </tbody> </table>	BODY FLUID	CONTENTS	(A) Blood	plasma + RBC+ WBC+ platelets	(B) Plasma	Blood -- RBC
BODY FLUID	CONTENTS						
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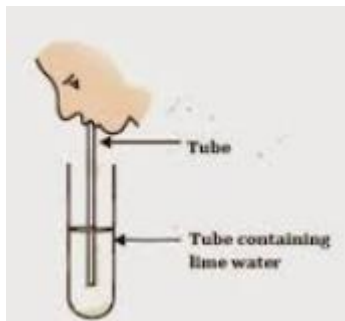
	<table border="1"> <tr> <td>(C)Lymph</td> <td>Plasma +RBC</td> </tr> <tr> <td>(D)Serum</td> <td>Plasma + RBC +WBC</td> </tr> </table>	(C)Lymph	Plasma +RBC	(D)Serum	Plasma + RBC +WBC
(C)Lymph	Plasma +RBC				
(D)Serum	Plasma + RBC +WBC				
13.	<p>Identify the part labelled as 'X' in the following diagram</p>  <p>(A) Food vacuole (B) Cell wall (C) Pseudopodia (D) Nucleus</p>				
14.	<p>Identify the part labelled as 'Y' and give the function of 'X'</p>  <p>(A) Alveoli, exchange of gases (B) Bronchi, exchange of gases (C) Bronchiole, transport of gases (D) Bronchiole, exchange of gases</p>				
15.	<p>The given diagram represents a treatment method for malfunctioning of our organ system.</p>				



Identify the correct organ system whose malfunctioning resulted in this condition

- (A) Digestive system
- (B) Circulatory system
- (C) Neural system
- (D) Urinary system

16. Observe the given experimental set up carefully and select the option which correctly explains the observation



- (A) Oxygen in the air turns lime water milky
- (B) Carbon dioxide turns lime water milky
- (C) No change in the test tube
- (D) Bubbles of oxygen formation

17. The refractive index of glass is $\frac{3}{2}$. The velocity of light in glass is

- (A) 3×10^8 m/s
- (B) 2×10^8 m/s
- (C) 10^8 m/s
- (D) 1.33×10^8 m/s

18. A concave mirror produces three times magnified (enlarged) real image of an object placed at 10 cm in front of it. Where is the image located?

- (A) 30 cm
- (B) 40 cm
- (C) -30 cm
- (D) 10 cm

19.	<p>Which of the following are effects of atmospheric refraction?</p> <p>1. Twinkling of stars. 2. Tyndall effect. 3. Advance sunrise and delayed sunset.</p> <p>Choose the correct option from the codes given below:</p> <p>(A) 1 and 2 (B) 2 and 3 (C) 1 and 3 (D) 1, 2 and 3</p>
20.	<p>A convex lens forms a real and inverted image of a needle at a distance of 50 cm from it. Where is the needle placed in front of the convex lens if the image is equal to the size of the object?</p> <p>(A) 0.25 m (B) 0.30 m (C) 0.35 m (D) 0.50 m</p>
21.	<p>The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?</p> <p>(A) Between the principal focus and the center of curvature</p> <p>(B) At the center of curvature</p> <p>(C) Beyond the center of curvature</p> <p>(D) Between the pole of the mirror and its principal focus.</p>
22.	<p>Where should an object be placed in front of a convex lens to get a real image of the size of the object?</p> <p>(A) At the principal focus of the lens</p> <p>(B) At twice the focal length</p> <p>(C) At infinity</p> <p>(D) Between the optical center of the lens and its principal focus</p>
23.	<p>At noon the sun appears white as</p> <p>(A) light is least scattered</p> <p>(B) all the colours of the white light are scattered away</p> <p>(C) blue colour is scattered the most</p> <p>(D) red colour is scattered the most</p>
24.	<p>A concave lens of focal length 15 cm forms an image 10 cm from the lens. How far is the object placed from the lens?</p> <p>(A)-20 cm (B) 40 cm (C)-30 cm (D) -40 cm</p>

SECTION -B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

25.	An object 5.0 cm in length is placed at a distance of 20 cm in front of a convex mirror of radius of curvature 30 cm. The position of the image is (A) 8.57 cm (B) 9.10 cm (C) 8.15 cm (D) 7.15 cm
26.	An object of size 7.0 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp focused image can be obtained? (A) 54 cm (B) 60 cm (C) -54 cm (D) -60 cm
27.	The angle between incident ray and reflected ray is 60° . What is the angle of incidence? (A) 30° (B) 40° (C) 60° (D) 50°
28.	When an incident ray makes an angle of 40° with a normal to the air glass interface of the rectangular glass slab. The value of angle of emergence is (A) 30° (B) 60° (C) 90° (D) 40°
29.	The clear sky appears blue because (A) blue light gets absorbed in the atmosphere (B) ultraviolet radiations are absorbed in the atmosphere (C) violet and blue lights get scattered more than lights of all other colours by the atmosphere (D) light of all other colours is scattered more than the violet and blue colour lights by the atmosphere
30.	Twinkling of stars is due to atmospheric (A) dispersion of light by water droplets (B) refraction of light by different layers of varying refractive indices (C) scattering of light by dust particles (D) internal reflection of light by clouds
<p>Question No. 31 to 34 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:</p> <p>(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</p>	
31.	<p>Assertion (A): Concave mirrors are used as make-up mirrors.</p> <p>Reason (R): When the face is held within the focus of a concave mirror, then a diminished image of the face is seen in the concave mirror.</p>

32.	<p>Assertion (A): The aqueous solutions of glucose and alcohol do not show acidic character.</p> <p>Reason (R): Aqueous solutions of glucose and alcohol do not give H⁺ ions.</p>
33.	<p>Assertion (A): In human beings' respiratory pigment is haemoglobin</p> <p>Reason (R): It is a type proteinaceous pigment and has high affinity for carbon dioxide</p>
34.	<p>Assertion (A): Pyruvate is a 6-carbon compound</p> <p>Reason (R): It is produced in cytoplasm during cellular respiration</p>
35.	<p>What happens when right and left ventricle contract during pumping of blood by human heart?</p> <p>(A) Blood transferred to the right ventricle and left ventricle simultaneously.</p> <p>(B) Blood is transferred to lungs for oxygenation and is pumped into various organs simultaneously.</p> <p>(C) Blood transferred to the right atrium and left atrium simultaneously.</p> <p>(D) Blood is received from lungs after oxygenation and is received from various organs of the body.</p>
36.	<p>Given below are the functions of some parts of human circulatory system. Identify the correct match.</p> <p>(A) Pulmonary vein – takes oxygenated blood from body parts to heart</p> <p>(B) Artery – takes oxygenated blood from heart to lung</p> <p>(C) Dorsal aorta – takes deoxygenated blood from heart to body parts</p> <p>(D) Vena cava – takes deoxygenated blood from body parts to right atrium</p>
37.	<p>The process of throwing out of undigested food in Amoeba is called</p> <p>(A) Egestion</p> <p>(B) Digestion</p> <p>(C) Nutrition</p> <p>(D) Endocytosis</p>
38.	<p>Which region of the alimentary canal absorbs the digested food?</p> <p>(A) Stomach</p> <p>(B) Small intestine</p> <p>(C) Large intestine</p> <p>(D) Liver</p>
39.	<p>The characteristic processes observed in anaerobic respiration are</p> <p>(i) presence of oxygen</p>

	(ii) release of carbon dioxide (iii) release of energy (iv) release of lactic acid (A) i), ii) only (B) i), ii), iii) only (C) ii), iii), iv) only (D) iv) only																																										
40.	Which one of the given properties is not generally exhibited by ionic compounds? (A) Solubility in water (B) Electrical conductivity in solid state (C) High melting and boiling points (D) Electrical conductivity in molten state																																										
41.	What is the chemical formula of POP (Plaster of Paris)? (A) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (B) $\text{CaSO}_4 \cdot 3\text{H}_2\text{O}$ (C) $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$ (D) $\text{CaCO}_3 \cdot 1/2\text{H}_2$																																										
42.	Which salt is Acidic in nature? (A) NH_4Cl (B) $\text{CH}_3\text{COONH}_4$ (C) NaCl (D) Na_2CO_3																																										
43.	The image shows the pH values of four solutions on a pH scale. <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td> </tr> <tr> <td></td><td></td><td></td><td></td><td>↑</td><td></td><td>↑</td><td></td><td>↑</td><td></td><td></td><td>↑</td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td>A</td><td></td><td>B</td><td></td><td>C</td><td></td><td></td><td>D</td><td></td><td></td> </tr> </table> <p style="text-align: center;">Which solutions are alkaline in nature?</p> (A) A and B (B) B and C (C) C and D (D) A and D	1	2	3	4	5	6	7	8	9	10	11	12	13	14					↑		↑		↑			↑							A		B		C			D		
1	2	3	4	5	6	7	8	9	10	11	12	13	14																														
				↑		↑		↑			↑																																
				A		B		C			D																																
44.	An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change?																																										

	<p>(A) Baking powder (B) Lime (C) Ammonium hydroxide solution (D) Hydrochloric acid</p>
45.	<p>$\text{Pb} + \text{CuCl}_2 \rightarrow \text{PbCl}_2 + \text{Cu}$ The above reaction is an example of: (A) combination (B) double displacement (C) decomposition (D) displacement</p>
46.	<p>A student performs an experiment to form aluminum chloride from aluminum and chlorine.</p> <p>Which options give the chemical equation of the reaction?</p> <p>(A) $\text{Al} + \text{Cl}_2 \rightarrow \text{AlCl}_2$ (B) $2\text{Al} + \text{Cl}_2 \rightarrow 2\text{AlCl}$ (C) $2\text{Al} + 3\text{Cl}_2 \rightarrow 2\text{AlCl}_3$ (D) $3\text{Al} + 3\text{Cl}_2 \rightarrow 3\text{AlCl}_3$</p>
47.	<p>The chemical reaction between potassium chloride and silver nitrate is given by the chemical equation.</p> <p>$\text{AgNO}_3 + \text{KCl} \rightarrow \text{AgCl} + \text{KNO}_3$</p> <p>What can be inferred from the chemical equation?</p> <p>(A) silver nitrate and potassium undergo a decomposition reaction to form silver chloride and potassium nitrate (B) silver nitrate and potassium undergo a displacement reaction to form silver chloride and potassium nitrate (C) silver nitrate and potassium undergo a combination reaction to form silver chloride and potassium nitrate (D) silver nitrate and potassium undergo double displacement reaction to form silver chloride and potassium nitrate</p>
48.	<p>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:</p> <p>(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 air.</p>

**SECTION –
C**

Section- C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section.

The first attempted 10 questions would be evaluated.

CASE	An image formed in a convex mirror is always virtual, erect and smaller in size whatever be the position of the object. However, in a concave mirror the image may be real or virtual: erect or inverted: smaller or bigger in size than the object. This would depend upon the distance of the object from the mirror.
49.	A Concave mirror is used as reflector in (A) Torches (B) Search lights (C) Head lights of motor vehicles (D) All the above
50.	In vehicle head lamps, the reflector used is a (A) Convex mirror (B) Concave mirror (C) Plane mirror (D) None of these
51.	Which of the mirrors has larger field of view? (A) Convex (B) Concave (C) Plane (D) all have same field of view
52.	Real or virtual image of an object formed by a concave mirror depends on (A) Size of mirror (B) Polish of mirror (C) Distance of object from the mirror (D) All of these
CASE	Plants are living things that need some form of energy. They have cells and tissues. They also grow in size and girth likewise human beings. They are the producers of the ecosystem. So, in order to synthesize food, they do have nutrient requirements. Of course, the kind of nutrient requirements varies. Plants have their special capability to form their own food.
53.	What is the kind of mode of nutrition opted by plants? (A) Autotrophic (B) Heterotrophic (C) Saprophytic

	(D) Holozoic
54.	<p>The most important function of chlorophyll is to</p> <p>(A) Absorb carbon dioxide from the atmosphere</p> <p>(B) Absorb water and minerals from the soil</p> <p>(C) Give green colour to the leaves</p> <p>(D) Absorb light</p>
55.	<p>Process by which plants prepare their food is</p> <p>(A) Biogenesis</p> <p>(B) Metabolic synthesis</p> <p>(C) Photosynthesis</p> <p>(D) Photorespiration</p>
56.	<p>In plants, food is produced in the form of</p> <p>(A) Glucose</p> <p>(B) Sucrose</p> <p>(C) Starch</p> <p>(D) Fructose</p>
CASE	<p>The earlier concept of oxidation and reduction is based on the addition or removal of oxygen or hydrogen elements so, in terms of oxygen and hydrogen, oxidation is addition of oxygen to a substance and removal of hydrogen from a substance. On other hand, reduction is addition of hydrogen to a substance and removal of oxygen from a substance. The substance which gives oxygen to another substance or removes hydrogen from another substance in an oxidation reaction is known as oxidising agent, while the substance which gives hydrogen to another substance in a reduction reaction is known as reducing agent. For example</p> $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$ $2 \text{H}_2\text{S} + \text{SO}_2 \rightarrow 3\text{S} + 2 \text{H}_2\text{O}$
57.	<p>A redox reaction is one in which</p> <p>(A) Both the substance is reduced</p> <p>(B) Both the substance is oxidised</p> <p>(C) An acid is neutralised by the base</p> <p>(D) One substance is oxidised while the other is reduced</p>
58.	<p>The reaction, $\text{H}_2\text{S} + \text{Cl}_2 \rightarrow \text{S} + 2 \text{HCl}$</p> <p>(A) H_2S is the reducing agent</p>

	<p>(B) H₂S is the oxidising agent (C) HCl is the oxidising agent (D) Cl₂ is the reducing agent</p>
59.	<p>Mg + CuO → MgO + Cu</p> <p>Which of the following is wrong related to the above reaction?</p> <p>(A) CuO gets reduced (B) Mg gets oxidised (C) CuO gets oxidised (D) It is a redox reaction</p>
60.	<p>Identify the correct oxidising agent and reducing agent in the following reaction.</p> <p>Fe₂O₃ + 2 Al → 2 Fe + Al₂O₃</p> <p>(A) Al – oxidising agent, Fe₂O₃ – reducing agent (B) Fe- oxidising agent, Al₂O₃ – reducing agent (C) Fe₂O₃ - oxidising agent, Al –reducing agent (D) Fe₂O₃ - oxidising agent, Al₂O₃ – reducing agent</p>

Q.NO	ANSWERS
	Section - A
1.	(C)
2.	(D)
3.	(C)
4.	(B)
5.	(C)
6.	(C)
7.	(B)
8.	(D)
9.	(C)
10.	(D)
11.	(A)
12.	(A)
13.	(C)
14.	(D)
15.	(D)
16.	(B)
17.	(B)
18.	(C)

19.	(D)
20.	(D)
21.	(D)
22.	(B)
23.	(A)
24.	(C)
Section - B	
25.	(A)
26.	(C)
27.	(A)
28.	(D)
29.	(C)
30.	(C)
31.	(B)
32.	(A)
33.	(C)
34.	(D)
35.	(B)
36.	(D)
37.	(A)
38.	(B)
39.	(C)

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40.	(B)
41.	(C)
42.	(A)
43.	(C)
44.	(D)
45.	(D)
46.	(C)
47.	(D)

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48.	(C)
Section - C	
49.	(D)
50.	(B)
51.	(A)
52.	(C)
53.	(A)
54.	(D)
55.	(C)
56.	(A)
57.	(D)
58.	(A)
59.	(C)
60.	(C)
