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INDIAN SCHOOL AL WADI AL KABIR

DEPARTMENT OF SCIENCE

Sample Question Paper 2 (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 -

Α

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

The first attempted 20 questions would be evaluated.

1.	 What change in colour is observed when white silver chloride is left exposed to sunlight? (a) White to brown (b) White to grey (c) White to green (d) No change in colour.
2.	 The chemical reaction between copper (II)oxide and hydrogen is given below. CuO + H₂ → Cu + H₂O The reducing and oxidising agents involved in this redox reaction are: (a) Hydrogen and copper oxide respectively (b) Hydrogen and copper respectively (c) Copper and hydrogen respectively (d) Hydrogen and water respectively
3.	If a sample of water containing detergents is provided to you, which of the following methods will you adopt to neutralise it? (a) Treating the water with baking soda (b) Treating the water with vinegar (c) Treating the water with caustic soda

	(d) Treating the water with washing soda
4.	The reaction of MnO ₂ with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released. HCl (aq) HCl (aq) REACTANTS REACTANTS HCl (aq) PRODUCTS
	In the above discussed reaction, what is the nature of MnO ₂ ? (a) Acidic oxide (b) Basic oxide (c) Neutral oxide (d) Amphoteric oxide
5.	$ZnO + (X) \rightarrow ZnSO_4 + H_2O. \text{ Here } (X) \text{ is-}$ (a) $ZnSO_4$ (b) HCI (c) H_2SO_4 (d) HNO_3
6.	 Plaster of Paris hardens by- (a) giving off CO₂. (b) changing into CaCO₃. (c) combining with water (d) giving out water
7.	When zinc granules are dipped in blue coloured copper sulphate solution, the colour of solution obtained is (a) blue (b) yellow (c) colourless (d) brown
8.	A student tests a sample of drinking water and reports its pH value as 5 at room temperature. Which one of the following might have been added in water? (a) Ammonium chloride (b) Sodium chloride (c) Sodium bicarbonate (d) Baking soda

9.	 Which of the following statements is not correct? (i) All metal carbonates react with acid to give a salt, water and carbon dioxide (ii) All metal oxides react with water to give salt and acid (iii) Some metals react with acids to give salt and hydrogen (iv) Some non-metallic oxides react with water to form an acid (a) (i) (b) (ii) (c) (iii) (d) (iv)
10.	The colour of coating developed on a zinc rod on dipping it in an aqueous copper sulphate solution will be (a) Blue (b) Brown (c) White (d) Green
11.	Select the correct statement. (a) Heterotrophs do not synthesis their own food (b) Heterotrophs utilise solar energy for photosynthesis (c) Heterotrophs synthesise their own food (d) Heterotrophs are capable of converting carbon dioxide and water into carbohydrates.
12.	What is observed when air is blown from mouth into a test tube containing lime water? (a) Lime water turns milky due to the CO ₂ exhaled (b) Lime water becomes colourless due to the CO ₂ exhaled (c) Lime water turns milky due to water vapour in blown air (d) Lime water does not turn milky due to the CO ₂ exhaled
13.	The dialyser works as kidney except does not perform
14.	The blood leaving the tissues becomes richer in (a) Carbon dioxide (b) Water (c) Haemoglobin (d) Oxygen
15.	The role of nasal cavity in human respiratory system (i) Filtration of inhaled air. (ii) Removal of germs and dust. (iii) Moistening of the inhaled air. (a)(i) &(ii) (b)(ii) & (iii) (c)(i), (ii) & (iii)

	(d) None of the	ese				
16.	Which of the f (i) During inh (ii) In the alved into blood and (iii) Haemoglo (iv) Alveoli ind (a) (i) and (iv) (b) (ii) and (iii) (c) (i) and (iii) (d) (ii) and (iv)	following so alation, rib oli, exchan carbon dic bin has a g crease surf)	tatement(s) s move inw ge of gases oxide from greater affin ace area for	is (are)true vard and dia takes place the blood in ity for carb exchange	e about resp aphragm is e i.e., oxyge nto the alve oon dioxide of gases	biration? raised en from alveolar air diffuses colar air e than oxygen
17.	In an experime slab, four stude the experiment	ent to trace ents tabulat t most corr	the path of ted their ob ectly?	a ray of lig servations	ght passing as given be	through a rectangular glass low. Which student performed
	Student	Α	В	С	D	
	∠i	30°	30°	30°	30°	
	∠r	18°	20°	19°	21.5°	
	∠e	32°	32.5°	30°	29°	
10	(a)A (b) B	(c) C	(d) D			
18.	What happens (a) Ben (b) Ben (c) Pass (d) Refl	when whit ds away fro ds towards ses un devia lects back	om normal normal ated	assed from	air to glass	prism
19.	A student obt the screen (S) the following	ains a shar using the distances s	p image of given conca should he n	the distant ave mirror neasure to g	window (W (M) to dete get the foca	W) of the school laboratory on ermine its focal length. Which of l length of the mirror?
			o Annual Annua		M	
	(a) MW (b) MS	V	5	M		





26.	Fe ₂ O ₃ +A1 → Al ₂ O ₃ +Fe. The reaction is an example of: (a) combination reaction (b) decomposition reaction (c) displacement reaction (d) double displacement reaction
27.	The reaction of water and quick lime is an example of: (a) combination reaction (b) exothermic reaction (c) both (a) and (b) (d) None of these.
28.	A student strongly heats hydrated ferrous sulphate salt in a dry test tube. He would observe a: (a) yellow residue (b) brown residue (c) light green residue (d) white residue
29.	A teacher gave two test tubes – one containing water and the other containing sodium hydroxide solution to two students. Then he asked them to identify the test tube containing sodium hydroxide solution. Which one of the following can be used for correctly identifying the test tube containing the solution of sodium hydroxide? (a) Blue litmus (b) Red litmus (c) Sodium carbonate solution (d) Dilute HCl
30.	 Sodium carbonate is a basic salt because it is a salt of: (a) Strong acid and strong base (b) Weak acid and weak base (c) Strong acid and weak base (d) Weak acid and strong base
Question questions A. Bot B. Bot C. A is D. A is	No. 31 to 35 consist of two statements – Assertion (A) and Reason (R). Answer these selecting the appropriate option given below: h A and R are true and R is the correct explanation of A h A and R are true and R is not the correct explanation of A s true but R is false s False but R is true
31.	Assertion: Zinc oxide is an amphoteric oxide. Reason: It reacts with both acid and base to form salt and water.

32.	Assertion: Bread tastes sweet on mastication. Reason: Salivary amylase converts starch into sugar.
33.	Assertion: mammals and birds have four chambered heart. Reason: mammals and birds are warm blooded.
34.	Assertion(A): Virtual images are always erect. Reason (R) : Virtual images are formed by converging lenses only
35.	Reddish brown deposits observed on iron nails when these are kept in aqueous solution of copper sulphate is that of: (a) Cu ₂ O (b) CuO (c) Cu (d) CuS
36.	The atomic numbers of four elements A, B, C and D are 6, 8, 10 and 12 respectively. The two elements which can react to form ionic bonds (or ionic compound) are: (a) A and D (b) B and C (c) A and C (d) B and D
37.	Given below are the steps to be followed for performing starch test on a green leaf (i) Boil the leaf in alcohol (ii) Boil the leaf in water (iii) Dip the leaf in iodine solution (iv) Wash the leaf in water The correct sequences of steps are a) (i), (iv), (ii), (iii) b) (ii), (iv), (iii), (i) c) (ii), (i), (iii), (iv) d) (iv), (i), (iii), (iii)
38.	Select the most appropriate sequence for aerobic respiration a) Glucose $\xrightarrow{\text{Mitochondria}}$ Pyruvate $\xrightarrow{\text{Cytoplasm}}$ CO ₂ + H ₂ O + Energy b) Glucose $\xrightarrow{\text{Cytoplasm}}$ Pyruvate $\xrightarrow{\text{Mitochondria}}$ CO ₂ + H ₂ O + Energy c) Glucose $\xrightarrow{\text{Cytoplasm}}$ Pyruvate + Energy $\xrightarrow{\text{Mitochondria}}$ CO ₂ + H ₂ O d) Glucose $\xrightarrow{\text{Cytoplasm}}$ Pyruvate + Energy $\xrightarrow{\text{Mitochondria}}$ CO ₂ + H ₂ O + Energy $\xrightarrow{\text{Cytoplasm}}$ Pyruvate + Energy $\xrightarrow{\text{Mitochondria}}$ CO ₂ + H ₂ O + Energy



		Bronchus	Bronchiole	Larynx	Trachea	
	(a)	W	X	Ζ	Y	
	(b)	X	Ζ	Y	W	
	(c)	Y	W	X	Ζ	
	(d)	Ζ	Y	W	X	
42.	The dia	orams showir	og the correct r	oath of the ray	zafter passing t	hrough the
	(a) II and (b) I and (c) I, II (d) I, II	I I III III only III only I and III I and IV	F_2 $(iv) - F_2$	F ₁ F ₁ V	F ₂	
43.						
	An obj object 1	ect is placed in from the lens i (a) 60 cm ar (b) – 60 cm (c) 60 cm ar (d) 30 cm ar	n front of a cor is 30 cm. Find nd -2 and -2 nd +2 nd -1	nvex lens of f the position a	ocal length 20 d	cm. The distance of the on of the image.
44.						
	Which the sun	of the followi at sunrise or	ng phenomena sunset?	contributes s	significantly to	the reddish appearance of
		(a) Dispersio	n of light		(b) Scatter	ing of light
		(c) Total inte	rnal reflection	of light	(d) Reflecti	on of light from the earth

45.	
	Consider the following situation, what can be said about emergent ray/rays?
	White Color Prism A
	(a)VIBGYOR (b)A Red light
	(c)A White Light (d)A violet light
46	
т 0 .	Suppose you are in danger, and you need to give signal to save yourself, what colour you prefer?
	(a)Red (b)Yellow
	(c)Blue (d)Violet
17	
-7.	Refractive index of water and benzene w.r.t air are 1.33 and 1.50 respectively. Calculate refractive index of benzene with respect to water? (a)0.89 (b)1.13 (c)2.14 (d)0.67
48.	
	Which of the following phenomena of light are involved in the formation of a rainbow?
	(a) Reflection, scattering and dispersion
	(b) Refraction, dispersion and scattering
	(c) Refraction, dispersion and internal reflection
	(d) Dispersion, scattering and total internal reflection
	SECTION –
Section-	C C consists of three Cases followed by questions. There are a total of 12 questions in this
section 4	Attempt any 10 questions from this section
The first	attempted 10 questions would be evaluated
CASE	A scale for measuring hydrogen ion concentration in a solution, called pH scale has
	been developed. The p in pH stands for 'potenz' in German, meaning power. On
	the pH scale we can measure pH from 0 to 14. pH should be thought of simply
	as a number which indicates the acidic or basic nature of a solution. Higher the
	hydronium ion concentration, lower is the pH value

49.	Which one of the following will have the highest hydrogen ion concentration? (a) $pH = 1.1$ (b) $pH = 2.2$ (c) $pH = 3.3$ (d) $pH = 4.4$
50.	 How is the hydrogen ion concentration and pH related to each other? (a) They are inversely proportional. (b) They are directly proportional. (c) They are equal. (d) They have no relation.
51.	A basic solution could have a pH of: (a) 3 (b) 5 (c) 7 (d) 9
52.	The table provides the pH of four solutions A, B, C and D
CASE	RESPIRATION

molecules and that is how energy is obtained which is stored in the form of ATP molecules in the cells. This energy can be used anywhere the body wants to do so. The process of releasing energy from food, is called respiration.
 What is the full form of ATP? (a) Adenosine tri-phosphate (b) Adenosine tri-phosphate (c) Adenosine tetraphosphate (d) Adenosine monophosphate
Respiration is (a) Biochemical process (b) Passive process (c) Physical process (d) Biophysical process
Respiration is the process in which- (a) Energy is used up (b) Energy is stored in the form of ADP (c) Energy is not released at all (d) Energy is released and stored in the form of ATP
The form of energy used in respiration is - (1) Electrical energy (2) Chemical energy (3) Mechanical energy (4) Radiant energy
Ram placed a glass slab on a drawing sheet and marked its boundary as PQRS. Then he removed the glass slab and drew a line AO on the side PQ. He placed the glass slab in position, passed light from a laser torch through it along AO. He observed the path of light through the glass slab and marked the points O, B and C. PQ is the surface of separation of air and glass and that RS is the surface of separation of glass and air

57.	Where does the incident and emergent ray meet in above figure?
	a) inside the glass b) infinity c) above the glass slab d) none of these
58.	
	Which is of greater optical density?
	a) Air
	b) Glass a) Both Class and Air are ontical densar
	d) Both Glass and Air are optical rarer
	a) both Glass and All are optical faller
59.	
	Is the angle of refraction greater or lower than the angle of incidence when it goes from glass to air?
	a) Greater b) Lower c) Equal d) None of these
60.	
	In the above figure lateral displacement is mentioned by

Q.NO	ANSWERS	
	Section - A	
1.	(b) White to grey	
2.	(a) Hydrogen and copper oxide respectively	
3.	(b) Treating the water with vinegar(acidic)	
4.	(b) Basic oxide	
5.	(c) H ₂ SO ₄	
6.	c) combining with water	
7.	(c) colourless	
8.	(a) Ammonium chloride (acidic salt)	
9.	(b) (ii)	
10.	(b) Brown (copper is deposited)	
11.	. (a) Heterotrophs do not synthesis their own food	
12.	(a) Lime water turns milky due to the CO_2 exhaled	
13.	(c) selective reabsorption	
14.	(a) Carbon dioxide	
15.	(c)(i), (ii) & (iii)	
16.	(d) (ii) and (iv)	
17.	c) C (angle of incidence =angle of emergence)	
18.	(b) Bends towards normal	

19.	(b) MS (focal length- distance between focus and the pole)		
20.	D (angle of incidence-x and angle of refraction-z)		
21.	D (angle of incidence= angle of reflection)		
	D		
	ray of 40° light 50°		
22.	C (Object should be placed between 2F and F)		
23.	A.		
24.	1. b)-75cm $m = -\frac{v}{u} \implies 1.5 = -\frac{v}{-25}$ $\implies v = \frac{75}{2} \text{ cm}$ Now, from mirror formula, $\frac{1}{f} = \frac{1}{v} + \frac{1}{u} = \frac{1}{75/2} + \frac{1}{-25} = -\frac{1}{75}$ $\therefore f = -75 \text{ cm}$		
Section - B			
25.	(d) the solution remains colourless and no deposition is seen on the iron nail.(no displacement reaction as aluminium is more reactive than iron)		
26.	(c) displacement reaction		
27.	(c) both (a) and (b)		
28.	(b) brown residue		

29.	(b) Red litmus
30.	d) Weak acid and strong base
31.	A Both A and R are correct and R is the correct explanation of assertion.
32.	A Both A and R are true and R is the correct explanation of A
33.	E. Both A and R are true and R is the correct explanation of A
34.	2. (c) Assertion is true and Reason is false
35.	(c) Cu
36.	(d) B and D
37.	c) (ii), (i), (iii), (iv)
38.	d) Glucose $\xrightarrow{\text{Cytoplasm}}$ Pyruvate + Energy $\xrightarrow{\text{Mitochondria}}$ CO ₂ + H ₂ O + Energy
39.	b) Lime water

40.	a) a) (ii), b) (i), c) (iv) d) (iii)
41.	(d) Z Y W X
42.	3. (c) I, II and III
43.	(a) 60 cm and -2
44.	(b) Scattering of light
45.	(c)A White Light
46.	a) Red
47.	(b)1.13
	Refractive index of water with respect to air = μ_w = 1.33
	Refractive index of benzene with respect to air = μ_B = 1.50
	Refractive index of benzene with respect to water = $\frac{\mu_B}{\mu_w} = \frac{1.5}{1.33} = 1.13$

48.	4. (c) Refraction, dispersion and internal reflection	
	Section - C	
49.	(a) $pH = 1.1$ (lower the pH, higher the hydrogen ion concentration)	
50.	(a) They are inversely proportional.	
51.	(d) 9(basic solutions have pH more than 7)	
52.	(c) D < B < C < A	
53.	(a) Adenosine tri phosphate	
54.	a) Biochemical process	
55.	(d) Energy is released and stored in the form of ATP	
56.	(2) Chemical energy	
57.	5. b) infinity	
58.	6. b) Glass	
59.	7. a) Greater	
60	8. d) CD	
