

BANGALORE SAHODAYA SCHOOLS COMPLEX ASSOCIATION PRE-BOARD EXAMINATION 1(2024-2025) Grade X

Class:10 Time:3hrs SUBJECT: SCIENCE (086) SET 2 Date:16.12.2024 Marks: - 80

General Instructions:

- 1. All questions would be compulsory. However, an internal choice of approximately 33% would be provided. 50% marks are to be allotted to competency-based questions.
- 2. Section A would have 16 simple/complex MCQs and 04 Assertion-Reasoning type questions carrying 1 mark each.
- **3.** Section B would have 6 Short Answer (SA) type questions carrying 02 marks each.
- 4. Section C would have 7 Short Answer (SA) type questions carrying 03 marks each.
- 5. Section D would have 3 Long Answer (LA) type questions carrying 05 marks each.
- 6. Section E would have 3 source based/case based/integrated units of assessment (04 marks each) with sub-parts of the values of 1/2/3 marks

Sele 1-20	<u>SECTION -A</u> ct and write the most appropriate option out of the four options given for each of the qu). There is no negative mark for incorrect response <u>.</u>	estions
1.	 In which of the following processes, is a chemical reaction not involved? a) Storing of oxygen gas under pressure in a gas cylinder b) Adding hydrochloric acid to zinc granules taken in a test tube c) Ripening of grapes 	1
2.	 d) Heating copper whe in presence of an at high temperature. Reaction between X and Y forms the compound Z. X loses electron and Y gains electron. Which of the following properties is shown by Z? a) Has low melting point b) Dissolves in polar solvent like H₂O c) Conducts electricity in solid state d) Occurs as liquid 	1

3.	PbO + $H_2 \longrightarrow Pb + H_2O$ is an example of	1
	a) Neutralization reaction	
	b) Redox reaction	
	c) Double displacement reaction	
	d) Decomposition reaction	
4.	The correct electron dot structure of a water molecule is:	1
	a) H•O•H	
	b) H:O•H	
	с) Н:О:Н	
	d) H:O:H	
5.	Which of the following statement is not true?	1
	a) Corrosion is a chemical change	
	b) Corrosion of iron is called rusting	
	c) Corrosion is enhanced by stains on metallic surface	
	d) Corrosion can take place in vacuum.	
6.	Oils on treating with hydrogen in the presence of palladium or nickel catalyst form fats. This	1
	is an example of :	
	a) Addition reaction	
	b) Substitution reaction	
	c) Displacement reaction	
	d) Oxidation reaction	
7.	Observe the picture carefully and answer the question.	1
	Obseravation I II III	
	Solution after reaction Colourless Colourless Colourless	
	Metal Deposited Zn Cu Fe	
	Which of the following is the correct conclusion?	
	a) Al is more reactive than Cu and Fe but less reactive than Zn	
	b) Al is more reactive than Cu but less reactive than Zn and Fe	
	c) Al is more reactive than Zn and Cu but less reactive than Fe	

	d)	Al is more reactive than Zn, Cu and Fe	
8.	Which	of the following statement(s) is (are) true about respiration?	1
	i.	During inhalation, ribs move inward and diaphragm is raised	
	ii.	In the alveoli exchange of gases takes place ie oxygen from alveolar air diffuses into	
		blood and CO ₂ from blood into alveolar air.	
	iii.	Haemoglobin has greater affinity for carbon dioxide than oxygen	
	iv.	Alveoli increases surface area for exchange of gases	
	a)	(i) and (iv)	
	b)	(ii) and (iii)	
	c)	(i) and (iii)	
	d)	(ii) and (iv)	
9.	A doct	for advised a person to take an injection of insulin because	1
	a)	his blood pressure was low	
	b)	his heart was beating slowly	
	c)	he was suffering from goitre	
	d)	his sugar level in blood was high	
10.	Which	among the following statements are true for unisexual flowers?	1
	i.	they possess both stamen and pistil	
	ii.	they possess either stamen or pistil	
	iii.	they exhibit cross pollination	
	iv.	unisexual flowers possessing only stamens cannot produce fruits.	
	a)	(i) and (iv)	
	b)	(ii), (iii) and (iv)	
	c)	(iii) and (iv)	
	d)	(i), (iii) and (iv)	
11.	What i	is the correct direction of flow of electrical impulses?	1
	(2)	Street Street	
	(4)		
	(P)		
	(c		



 b) 15 Ω and 25 Ω c) 3.3 Ω and 13.13 Ω d) 25 Ω and 15 Ω 15. 15. 16. 17. 17. 18. 18. 19. <p< th=""><th>1</th></p<>	1
 c) 3.3 Ω and 13.13 Ω d) 25 Ω and 15 Ω 15. 16. 17. An ecosystem is represented in the figure given above. This ecosystem will be self-sustain if: a) the type of organisms represented by B are eliminated b) materials cycle between the organisms labelled A and organisms labelled B c) organisms labelled A are equal in number to the organisms labelled B. 	1
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16. In an ecosystem the 10% of energy available for transfer from one trophic level to the next	is 1
in the form of	
a) heat energy	
b) light energy	
c) chemical energy	
d) mechanical energy	
Question No. 17 to 20 consists of two statements – ASSERTION (A) and REASON(R).	1
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.	
17. Assertion: The impurities must be removed from the ore prior to the extraction of the meta	l. 1
Reason: The processes used for the removing the gangue from the ore are based on the	
differences between the physical or chemical properties of the gangue and the ore.	
18. Assertion: DNA copying is necessary during reproduction	
Reason : DNA copying leads to the transmission of characters from parents to offsprings	1
19. Assertion (A): Convex lenses are diverging in nature.	1

	Reason (R) : Diverging lenses are used to correct myopia.	
20.	Assertion: Ozone layer is getting depleted at upper atmosphere which is a cause of concern.	1
	Reason: CFC reacts with ozone and breaks it.	
	SECTION B	4
	Question No. 21 to 26 are very short answer questions	
21.	A metal salt MX when exposed to light, split up to form metal M and a gas X_2 . Metal M is	2
	used in making ornaments whereas X_2 is used in making bleaching powder. The salt MX is	
	itself used in black and white photography.	
	a) Identify metal M and gas X_2 .	
	b) Mention the type of chemical reaction involved when salt MX is exposed to light.	
22.	Fat is particularly difficult to digest as it is not water soluble. How is fat digested in the	2
	human body?	
	OR	
	Differentiate between a renal artery and renal vein with respect to	
	a) Direction of blood flow	
	b) Composition of blood	
23.	a) Trace the path a male gamete takes to fertilize a female gamete after being released from	2
	the penis.	
	b) State the number of sets of chromosomes present in a zygote.	
24.	Absolute refractive index of some material media are given below:	2
	Material medium Refractive index	
	Air 1.00	
	Crown glass 1.52	
	Diamond 2.42	
	a) Study the above data, redraw the given diagram and complete it:	
	Air	
	Crown glass	
	Diamond	
	b) Write the formula for arriving at the absolute refrective index of diamond	
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		1

25.	Attempt either option A or B	2
	A. A convex lens of focal length 10 cm is placed at a distance of 12 cm from a wall. How far	
	from the lens should an object be placed so as to form its image on the wall? Find the	
	magnification of the image.	
	OR	
	B. An object 4 cm in size is placed at 25 cm in front of a concave mirror of focal length 15	
	cm. At what distance should a screen be placed so as to obtain a sharp image? Find the size	
	of the image.	
26.	a) From the following group of organisms create a food chain which is most advantageous	2
	for human beings in terms of energy.	
	Cereal plant, rats, hawk, goat, snake, human being	
	b) State the possible disadvantages if the cereal plant is growing in soil rich in pesticides.	
	SECTION C	
	Question No. 27 to 33 are short answer questions	
27.	State one characteristic of each of the chemical reaction which takes place when:	3
	a) dilute hydrochloric acid is added to sodium carbonate	
	b) lemon juice is added gradually to potassium permanganate solution	
	c) dilute sulphuric acid is added to barium chloride solution	
	d) ammonium hydroxide is added to barium hydroxide	
	e) wax is burned in the form of a candle	
	f) addition of sodium sulphate solution to barium chloride solution	
28.	a) Illustrate the formation of sodium oxide by using electron dot structure. Name the ions	3
	present in them. Give reason for its high melting point.	
	(OR)	
	(B) Write chemical equations for the following reactions:	
	i. Cinnabar is heated in the presence of air	
	ii. Manganese dioxide is heated with aluminium powder	
	iii. A mixture of Cu_2O and Cu_2S is heated.	
29.	Explain how the release of hormones is controlled by the body with the help of a diagram.	3
	Name the mechanism	
30.	A blue coloured flower plant denoted by BB is crossbred with that of white coloured flower	3
	plant denoted by bb.	
	a) State the colour of flower you would expect in their F1 generation plants.	
		•







Why are household appliances connected in parallel?

Explain the advantages of AC over DC.

SECTION E

Question No 37 to 39 are case-based/data-based questions

37. Salts' refer to the compound formed when an acid reacts with a base. These reactions are often used in the laboratories to calculate the exact concentration of an acid or an alkali when the other is known. The familiar example of salt is sodium chloride (NaCl), which we use in our food on daily basis and is known as rock salt. It is prepared by the reaction of hydrochloric acid and sodium hydroxide solution. This salt is used to prepare various compounds. When electricity is passed through an aqueous solution of sodium chloride (called brine), it decomposes to form sodium hydroxide. The process is called the chlor-alkali process because of the products formed - chlor for chlorine and alkali for sodium hydroxide.



a) Write the chemical reaction of chlor-alkali process

b) Name the gases formed at the anode and the cathode.

- c) Write one use each of chlorine and hydrogen gas.
- d) How will you prepare baking soda from sodium chloride?

(OR)

e) How will you prepare bleaching powder from chlorine gas?

38. A picture of all 46 chromosomes in their pairs is called a karyptype.

4



b)	Mention two ways to increase the strength of the solenoid (1)
	<u>Attempt the option c or d</u>
c)	The magnetic field strength in a solenoid is maximum at the poles. True or false?
	(1)
	(OR)
c)	The material used as the core of the solenoid is stainless steel. True or false?