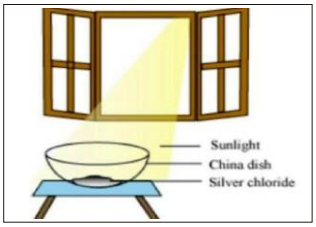
SHIKSHA CLASSES

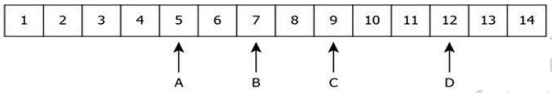
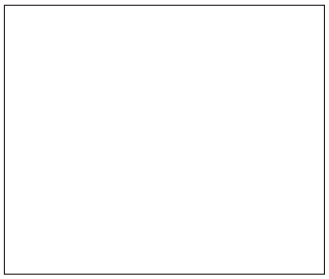
Sub : Science **Max Marks : 80**

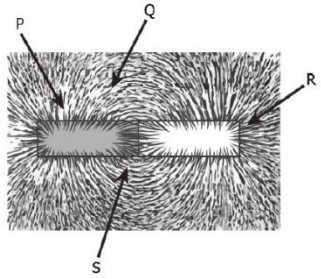
Class : X (CBSE) **Pre. Question Paper - 01** **Time : 3 hours**

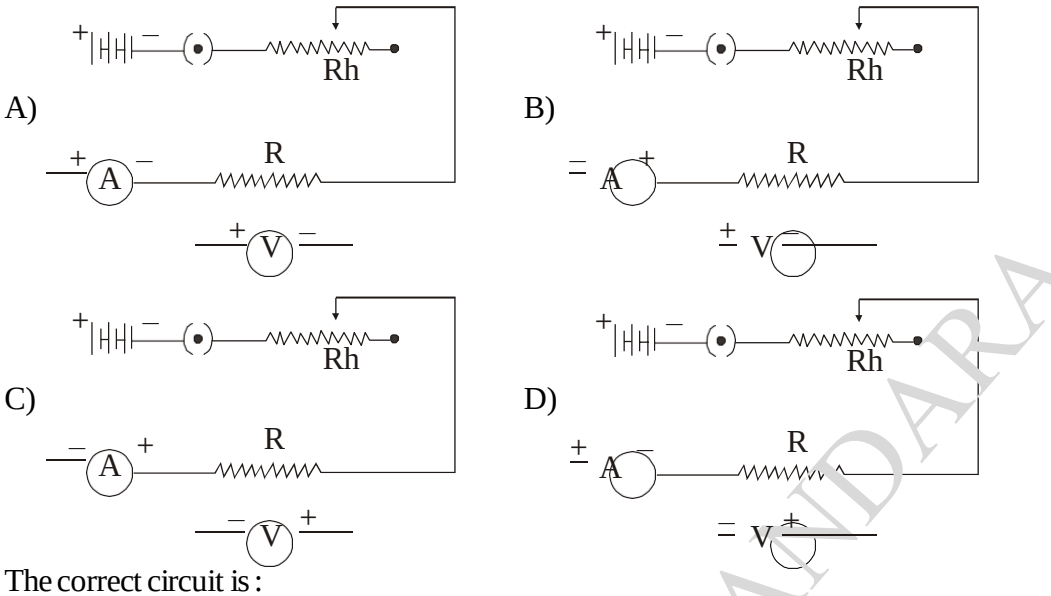
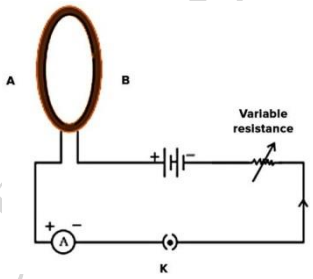
SECTION - A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 20

No.	Questions	Marks
1.	Answer the following question which are based on the table given below. Plaque is a deposit which collects around teeth. Study the table showing pH value of plaque surrounding the teeth of a person over time. **Time (hr) / pH** 0 / 7.0 1 / 7.0 2 / 7.1 3 / 7.2 4 / 4.1 What is the nature of tooth paste commonly used ? a) Basic b) Acidic c) Neutral d) Corrosive	1
2.	The following diagram displays a chemical reaction observe carefully and answer the following question : a) The type of chemical reaction that will take place is i) Combination ii) Double displacement iii) Displacement iv) Decomposition 	1

3.	The following reaction is an example of a $4NH_{3(g)} + 5O_{2(g)} \rightarrow 4NO_{(g)} + 6H_2O_{(g)}$ i) Displacement reaction ii)) Redox reaction a) (i) & (iv) b) (ii) & (iii) i) Combination reaction iv) Neutralisation reaction c) (i) & (iii) d) (iii) & (iv)	1
4.	What happens when a pellet of sodium is dropped in water? a) It catches fire and forms oxide. b) It absorbs heat and forms oxide. c) It catches fire and forms hydroxide. d) It absorbs heat and forms hydroxide.	1
5.	A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation? a) $KMnO_4$ is an oxidising agent, it oxidises $FeSO_4$. b) $FeSO_4$ acts as an oxidising agent and oxidises $KMnO_4$ c) The colour disappears due to dilution; no reaction is involved. d) $KMnO_4$ is an unstable compound and de-composes in presence of $FeSO_4$ to a colourless compound.	1
6.	The image shows the pH values of four solutions on a pH scale.  Which solutions are alkaline in nature? a) A and B b) B and C c) C and D d) A and D	1
7.	The name of the compound, $CH_3–CH_2–CHO$ is: a) Propanal b) Propanone c) Ethanol d) Ethanal	1
8.	In the sketch of the stomatal apparatus given alongside, which one of the following ismissing?  a) Cell membranes of the cells b) Cell walls of the cells c) Nuclei in the guard cells d) Chloroplasts in the guard cells	1

9.	Which structure out of I, II, III and IV marked in the given diagram of the epidermal peel of leaf should be labelled as stoma?  a) I b) II c) III d) IV	1
10.	A cross between a tall pea-plant (TT) and a short pea-plant (tt) resulted in progenies that were all tall plants because a) tallness is the recessive trait. b) shortness is the dominant trait. c) height of pea-plant is not governed by gene T or t. d) tallness is the dominant trait.	1
11.	Which nerves transmit impulses from the central nervous system towards muscle cells? a) Sensory nerves b) Motor nerves c) Relay nerves d) Cranial nerves	1
12.	Exchange of genetic material takes place in. a) Vegetative reproduction b) Asexual reproduction c) Sexual reproduction d) Budding	1
13.	If a wire of resistance R is melted & recast to half of its length, the new resistance of the wire will be. a) $\frac{R}{4}$ b) $\frac{R}{2}$ c) R d) 2 R	1
14.	A student places some iron fillings around a magnet. The iron fillings arrange themselves as shown in the image.  The student labelled four different regions around the magnet. Where would the magnetic field be the strongest? a) P b) Q c) R d) S	1

15.	The following four circuits have been made for studying the dependence of current on the potential difference across a resistor.  The correct circuit is : a) A b) B c) C d) D	1
16.	A circular loop placed in a plane perpendicular to the plane of paper carries a current when the keys is ON. The current as seen from points Aand B (in the plane of paper and on the axis of the coil) is anticlockwise and clockwise respectively. The magnetic field lines point from B to A. The N-pole of the resultant magnet is on the faces close to  a) A b) B c) A if the current is small, and B if the current is large d) B if the current is small and A if the current is large	1
	Q. no 17 to 20 are Assertion - Reasoning based questions. **These consist of two statements – Assertion (A) and Reason (R). Answer these questions 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 (A) :** The following chemical equation is example of thermal decomposition reaction. $2KClO_3(s) \xrightarrow[\text{Catalyst}]{\text{Heat}} 2KCl_{(s)} + 3O_2(g)$ **Reason (R) :** Heat gets released in the decomposition reactions.	1
18.	**Assertion(A) :** The brain is also known as the central nervous system. **Reason (R) :** Central nervous system controls and regulates the voluntary actions.	1
19.	**Assertion (A) :** The inner lining of the small intestine has numerous finger like projection called villi. **Reason (R) :** The villi increase the surface area for absorption.	1
20.	**Assertion(A) :** A compass needle is placed near a current carrying wire. The deflection of the compass needle decreases when the compass needle is displaced away from the wire. **Reason (R) :** Strength of a magnetic field decreases as one moves away from a current carrying conductor.	1
	SECTION – B **Q. no. 21 to 26 are very short answer questions.**	
21.	Compare in tabular form the reactivities of the following metals with cold and hot water: a) Sodium b) Calcium c) Magnesium **OR** Explain the formation of ionic compound CaO with electron-dot structure. Atomic numbers of calcium and oxygen are 20 and 8 respectively.	2
22.	What is reflex action ? Explain the mechanism of reflex action with a suitable example.	2
23.	What are the methods used by plants to get rid of excretory products?	2
24.	What is the male gonads in human beings? Mention their function.	2
25.	Refractive indices of four media A, B, C and D are given below. **Medium** / **Refractive index**: A – 1.33; B – 1.45; C – 1.52; D – 1.65 In which of these four media is the speed of light (i) maximum and (ii) minimum.	2

	OR If the image formed by a spherical mirror for all positions of the object placed in front of it is always erect and diminished , what type of mirror is it? Draw a labelled ray diagram to support your answer.	
26.	How is ozone formed in the upper atmosphere? Why is the damage of ozone layer cause concern to us?	2
	SECTION - C **Q.no. 27 to 33 are short answer questions.**	
27.	Write balanced equation for the reaction between magnesium & hydrochloric acid. Name the product obtained, identify the type of reaction.	3
28.	In the following schematic diagram for the preparation of hydrogen gas as shown in Figure, what would happen if following changes are made? a) In place of zinc granules, the same amount of zinc dust is taken in the test tube b) Instead of dilute sulphuric acid, dilute hydrochloric acid is taken c) In place of zinc, copper turnings are taken	3
29.	a) List two reasons for the appearance of variations among the progeny formed by sexual reproduction. b)  i) How does A reaches part B? i) State the importance of the part C. **OR** Draw a diagram of human female reproductive system and label the parts: i) Which produce an egg i) Where fertilisation takes place	3

30.	For the circuit shown in this diagram, calculate i) the resultant resistance. i) the total current. ii)) the voltage across 7 Ω resistor.	3
31.	a) The near point of a person suffering from hypermetropia is 75 cm. Calculate the focal length and power of the lens required to enable him to read the newspaper which is kept at 25 cm from the eye. b) Draw diagram showing a hypermetropic eye.	3
32.	Diagram shows lengthwise section of a current carrying solenoid. ⊗ indicates current entering into the page, and indicates current emerging out of the page. Decide which end of the solenoid A or B, will behave as north pole. Give reason for your answer. Also draw field lines inside the solenoid. **OR** Acurrent carrying conductor is placed in a magnetic field. Answer the following. i) List the factors on which the magnitude of force experienced by conductor depends. i) When is the magnitude of this force maximum? ii)) State the rule which helps, in finding the direction of motion of conductor placed in amagnetic field.	3
33.	a) Explain the role of UV radiation in formation of ozone with the help of a chemical reaction. b) Name the pollutant and write its role in depletion of ozone layer.	3
	SECTION - D **Q.no. 34 to 36 are Long answer questions.**	
34.	What are hydrocarbons? Distinguish alkanes from alkenes and each of them from alkynes, giving one example of each. Draw the structure of each compound cited as example to justify your answer.	5

	OR a) With the help of a suitable example, explain the process of hydrogenation mentioning the conditions of the reaction and anyone change in physical propertywith the formation of the product. b) How does a saturated hydrocarbon react with chlorine? Write chemical equation for it. What type of reaction is it called and why?	
35.	a) How does chemical coordination take place in animals? b) It is advised to use iodised salt. Give reason. **OR** a) An old man is advised by his doctor to take less sugar in his diet. Name the disease from which the man is suffering. Mention the hormone due to imbalance of which he is suffering from this disease. Which endocrine gland secretes this hormone? b) Name the endocrine gland which secretes growth hormone. What will be the effect of the following on a person i) deficiency of growth hormone i) excess secretion of growth hormone?	5
36.	i) What do you understand by the term fuse in an electric circuit ? ii) State two properties of a material, which make it suitable for making a fuse wire. iii) Why is a fuse wire always placed in the live wire of an electric circuit ? iv) How does a fuse wire protect an electric circuit ? v) Two fuse wires A& B of the same length are rated 15 A& 5 A which amongst the A& B will be thicker & why ?	5
	SECTION - E **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.	A solution of slaked lime produced by the reaction is used for white washing walls. Calcium hydroxide reacts slowly with the carbon dioxide in air to form a thin layer of calcium carbonate on the walls. Calcium carbonate is formed after two to three days of white washing and gives a shinyfinish to the walls. It is interesting to note that the chemical formula for marble is also $CaCO_3$. On the basis of above paragraph answer the following questions: a) Explain why calcium carbonate is used for white washing and not any other substance. b) Explain the importance of writing the physical states in a chemical equation. **OR** Give the reaction for the formation of calcium carbonate with physical states.	4
38.	**Case Study:** The figure shown below represent an activity to prove the requirements for photosynthesis.During the activityFix a strip of black paper in the middle on the upper surface of a leaf of destarched potted plant by means of cellotape or clips. Alternately	

	attach a Ganong's light screen or a black paper with a central cut design over it. Expose the plant to sunlight for 2-3 hours. Remove the black paper or Ganong's light screen. Pluck the leaf. Test it for starch by first boiling in water for 5-10 minutes, drying in folds of blotting paper, dipping in warm denatured spirit for 30-45 minutes, washing with hot water and pouring iodine over it.	
a)	This experimental set up is used to prove essentiality of which of the requirements of photosynthesis?	1
b)	Bluish black colour indicates the presence of ————for photosynthesis.	1
c)	Define photosynthesis.	2
	OR	
	Write the balanced equation of photosynthesis.	
39.	**Case Study :**	
	The lenses forms different types of images when object placed at different locations. When a ray is incident parallel to the principal axis, then after refraction, it passes through the focus or appears to come from the focus. When a ray goes through the optical centre of the lens, it passes without any deviation. If the object is placed between focus and optical center of the convex lens, erect and magnified image is formed.	
	As the object is brought closer to the convex lens from infinity to focus, the image moves away from the convex lens from focus to infinity. Also the size of image goes on increasing and the image is always real and inverted.	
	A concave lens always gives a virtual, erect and diminished image irrespective to the position of the object.	
a)	Where is the location of image formed by a convex lens when the object is placed at infinity?	1
b)	What is the change in size of the image when the object is moving closer to the lens?	1
c)	Write the size and nature of image formed by a convex lens when the object is placed at the focus of convex lens is	2
	OR	
	Draw the ray diagram when the object is placed at 2F1 in front of convex lens.	
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