CARMEL CONVENT SCHOOL, NEW DELHI
PeriodicTest 2
SCIENCE (2024)

Class X ABC **Max. Marks:80**
Date - 11/09/ 24 **Time :3 hours**

General Instructions:
i. This question paper consists of 39 questions in 5 sections.
ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expec 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 be the range of 30 to 50 words.
v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answers to these questions should be in the range of 80 to 120 words.
vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

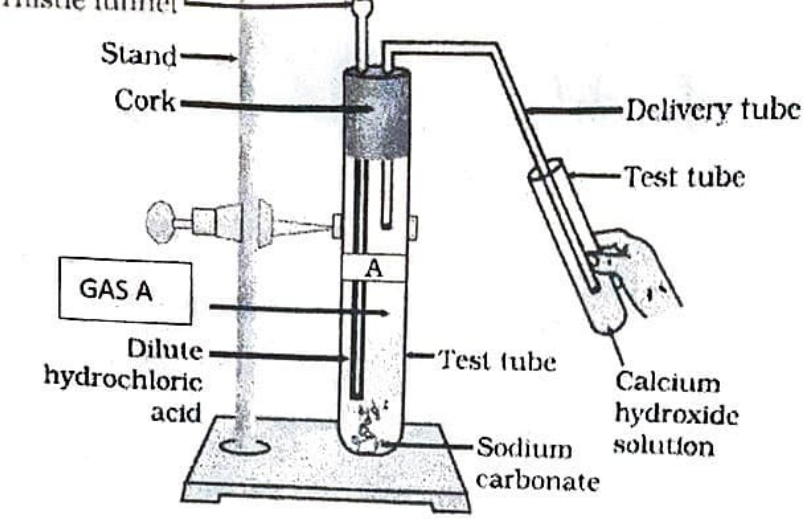
Section-A

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

Q1C — Few crystals of copper sulphate are taken in a test tube and heated .We observe the crystals change colour . Which of the following statements explain the above change correctly .
(a)Copper sulphate contains water of crystallization which is removed so the colour changes from blue to white .
(b)The water of crystallization makes the crystals wet .Hence the change in colour as water evaporates .
(c)Since the water evaporates from the crystals on heating it does not regain the colour back on adding water.
(d)None of the above

Q2 C - Paheli takes about 2 g barium hydroxide in a test tube. Add 1 g of ammonium chloride and mix with the help of a glass rod. What does she observe ?
(a)The solution cools and the palm feels the drop in temperature .
(b)Yellow precipitate was formed.
(c) Bubbles are seen coming out of the test tube .
(d) The reaction mixture became hot.

Q3 C Which of the following gases can be used for storage of fresh sample of an oil for a long time?
(a) Carbon dioxide or oxygen
(b) Nitrogen or oxygen
(c) Carbon dioxide or helium
(d) Helium or nitrogen



Identify gas A in the following experiment
(a) Nitrogen
(b)Hydrogen
(c)Oxygen
(d)Carbon dioxide

Q5 C Write a balanced chemical equation with state symbols for the following reactions.
(a)Solutions of barium chloride and sodium sulphate in water react to give insoluble barium sulphate and the solution of sodium Chloride. 1

Q6 C Identify the substances that are oxidised and the substances that are reduced in the following reactions.
(i)$4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$
(ii)$CuO(s) + H_2(g) \rightarrow Cu(s) + H_2O(l)$ 1

Q7 C Which of the following gives the correct increasing order of acidic strength
(a)Water < Acetic acid < Hydrochloric acid
(b)Water < Hydrochloric acid< Acetic acid
(c)Acetic acid< Water < Hydrochloric acid 1
(d)Hydrochloric acid< Water<Acetic acid

Q8B The site of photosynthesis in the cells of a leaf is
(a) chloroplast (b) mitochondria (c) cytoplasm (d) protoplasm 1

Q9 B Which of the statements is correct regarding bile? 1
(a) secreted by duct and stored in liver (b) secreted by liver and stored in bile duct
(c) Secreted by Liver and stored in gall bladder (d) secreted by gall bladder and stored in liver.

Q10B Which part of nephron allows the selective reabsorption of useful substances like glucose, amino acids, salts and water into the blood capillaries? 1
(a) Tubule (b) Glomerulus (c) Bowman's capsule (d) Ureter

Q11 B A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that 1
(a) they reproduce asexually (b) they are all unicellular
(c) they reproduce only sexually (d) they are all multicellular

Q12 B The chemicals released at the synapse are called: 1
(a) Hormones (b) Neurotransmitters (c) Enzymes (d) Digestive juices

Q13 P A person cannot see distinctly objects kept beyond 2 m. This defect can be corrected by using a lens of power 1
(a) + 0.5 D
(b) – 0.5 D
(c) + 0.2 D
(d) – 0.2 7D

Q14P At noon the sun appears white as 1
(a) light is least scattered
(b) all the colours of the white light are scattered away
(c) blue colour is scattered the most
(d) red colour is scattered the most

Q15B Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva? 1
(a) Starch breaking down into sugars.
(b) Proteins breaking down into amino acids.
(c) Absorption of vitamins.
(d) Fats breaking down into fatty acids and glycerol.

Q16 B The shape of guard cells changes due to change in ___. 1
(a) Protein composition of cells (b) Temperature of cells
(c) Amount of water in cells (d) Position of nucleus in cells

Question No. 17 to 20 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.

Q17C Assertion (A):Silver chloride turns red in sunlight 1
Reason (R) : Decomposition of silver chloride in the presence of sunlight to form sliver metal and chlorine gas .

Q18 B Assertion(A):The offspring produced by sexual reproduction is likely to adjust better in environmental fluctuation. 1
Reason (R) : During the fusion of gametes there is mixing of genetic material from two parents.

Q19P Assertion(A):Rainbow is caused by dispersion of sunlight by tiny water droplet 1
Reason (R) :The water droplets act like small prisms. They refract and disperse the incident sunlight, then reflect it internally, and finally refract it again when it comes out of the raindrop.

1

Q20B Assertion(A):A receptor is a specialized group of cells in a sense organ that perceive a particular type of stimulus.
Reason (R) :Different sense organs have different receptors for detecting stimuli

Section-B

Question No. 21 to 26 are very short answer questions

Q21C What are amphoteric oxides .Explain using examples . 2
Write the relevant chemical equation .

Q22 B A squirrel is in a scary situation. Its body has to prepare for either fighting or running away. List the immediate changes that take place in its body so that the squirrel is able to either fight or run. 2

Q23 B Draw a neat and complete diagram of the excretory system in human beings and label the organs which perform the following functions: 2
a. store urine until it is passed out.
b. transfer urine from the kidney.

Q24P Explain the refraction of light through a triangular glass prism using a labeled ray diagram. Define the angle of deviation. 2

Q25P A convex mirror used for rear-view on an automobile has a radius of curvature of 3.00 m. If a bus is located at 5.00 m from this mirror,find the position and magnification. 2

Q26B Complete the table given below: 2

	HORMONE	FUNCTION
a.	..... (1)	Promote cell division
b.	Testosterone/Estrogen	..... (2) .....
c.	Insulin	..... (3) .....
d.	..... (4)	Wilting of leaves

Section-C

Question No. 27 to 33 are short answer questions

Q27C (i) Give the constituents of baking powder
(ii) Why does cake or bread swell on adding baking powder? Write a chemical equation. 3

Q28C (a)A solution of a substance 'X' is used for whitewashing. 3
(i)Name the substance 'X' and write its formula.
(ii)Write the reaction of the substance 'X' named in (i) above with Water.
OR
(a)Plaster of Paris should be stored in a moisture-proof container .Explain why?
(b)List two uses of bleaching powder.

Q29B a. Explain in brief the different ways by which leaves of a plant help in excretion. 3

b. Name a plant and an animal which use the parasitic nutritive strategy to obtain nutrition.

Q30B "Reflex arcs continue to be more efficient for quick responses." Justify this statement. Also give a labeled diagram for the same. 3

Q31P A person needs a lens of power –4.5 D for correction of her vision. 1+1+1

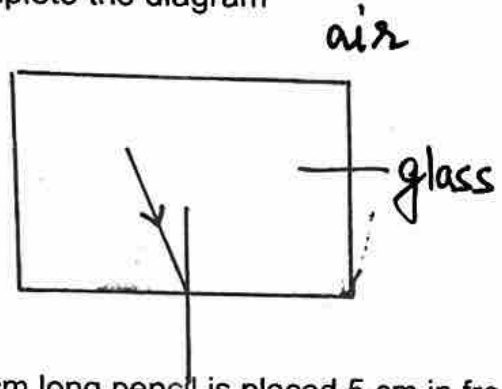
(a) What kind of defect in vision is she suffering from?

(b) What is the focal length of the corrective lens?

(c) What is the nature of the corrective lens?

Q32P (a)Light enters a container containing ice having refractive index 1.31 What is the speed of light in ice . 2+1

(b)Complete the diagram



Q33P A 10 cm long pencil is placed 5 cm in front of a concave mirror having a radius of curvature of 40 cm. 3

(i) Determine the position of the image formed by this mirror.

(ii) What is the size of the image?

(iii)Draw a ray diagram to show the formation of the image as mentioned in the part (i)

Section-D

Question No. 34 to 36 are long answer questions.

Q34C (a)What happens when calcium is treated with water? 5

(b)Name one metal and one non-metal that exist in a liquid state at room temperature.

(c)Name one metal having a melting point less than 310 K (37°C)

(d)A non-metal X exists in two different forms Y and Z. Y is the hardest natural substance, whereas Z is a good conductor of electricity. Identify X, Y and Z.

Q35B a. What is double circulation? How is it helpful in birds and mammals? 5

b. Draw a flowchart to show the different ways in which glucose is oxidized to provide energy in living organisms?

Q36P (a)Define one diopter of power of a lens. 1+3+1

(b)An object 5 cm in length is held 5 cm away from a convex lens of focal length 10 cm. Draw the ray diagram and find the position, size and the nature of the image formed.

(c) List any two uses of concave mirrors

SECTION - E

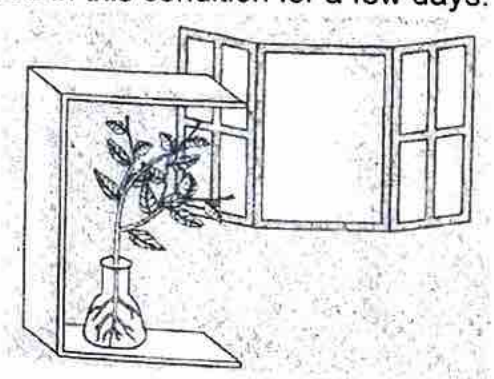
Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

Q37C Salt is an ionic compound that results from the neutralization reaction of an acid and a base.It is composed of related numbers of cations (positively charged ions) and anions (negative ions) so that the product is electrically neutral (without a net charge). 4

Salted Obtained from			
Name of the Salt	Formula	Base	Acid
Ammonium chloride	NH4Cl	NH4OH	–
Copper sulphate	–	–	H2SO4
Sodium chloride	NaCl	NaOH	–
Magnesium nitrate	Mg (NO3) 2	–	HNO3

Q38B Read the activity given below and answer the questions that follow: 4

(i) Fill a conical flask with water.
(ii) Cover the neck of the flask with a wire mesh.
iii) Keep two or three freshly germinated bean seeds on the wire mesh.
(iv) Take a cardboard box which is open from one side.
(v) Keep the flask in the box in such a manner that the open side of the box faces light coming from a window.
(vi) After two or three days, you will notice that the shoots bend towards light and roots away from light.
(vii) Now turn the flask so that the shoots are away from light and the roots towards the light.
(viii) Leave it undisturbed in this condition for a few days.



a. What can be concluded from this activity?
b. How does this movement occur in a plant stem (or shoot)? Explain giving the name of the hormone in action.
c. How is the movement of the leaves of a sensitive plant different from the movement observed in the above given experiment?

Q39P The human eye is one of the most valuable and sensitive sense organs. It enables us to see the wonderful world and the colours around us. On closing the eyes, we can identify objects to some extent by their smell, taste, sound they make or by touch. It is, however, impossible to identify colours while closing the eyes. Thus, of all the sense organs, the human eye is the most significant one as it enables us to see the beautiful, colourful world around us.

(a)What is meant by power of accommodation of the eye
(b)A student has difficulty reading the book at a normal distance . What could be the defect the child is suffering from? How can it be Corrected?
(c)Draw the diagram of the defective eye .
(d)Draw the ray diagram for the correction of the defect.

The end