

MOCK CBSE BOARD EXAM



SCIENCE

CLASS X

(PAPER 1)

(AS PER THE GUIDELINES OF CBSE)

Time: 2½ Hours

Max. Marks: 60

General Instructions

1. The question paper comprises of two sections A and B. You are supposed to attempt both the sections.
2. All questions are compulsory.
3. There is no overall choice. However, internal choice has been provided in all the three questions of five marks category. Only one option in such questions is to be attempted.
4. All questions of section A, and all questions of section B are to be attempted separately.
5. Questions 1 to 6 in section A, and 17 to 19 in section B are short questions. These carry one mark each.
6. Questions 7 to 10 in section A, and 20 to 24 in section B are short answer type questions; and carry two marks each.
7. Questions 11 to 14 in section A, and 25 to 26 in section B are also short answer type questions; and carry three marks each.
8. Questions 15 and 16 in section A, and question 27 in section B are long answer type questions; and carry five marks each.

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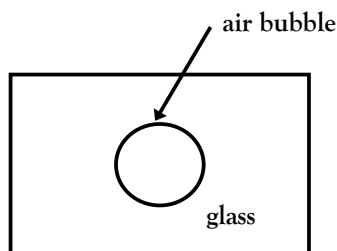
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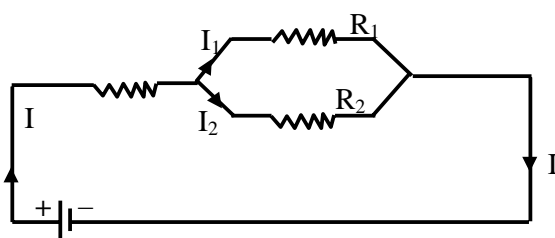
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SECTION - A

1. The diagram shows an air bubble in a glass slab. What will happen to a set of parallel rays passing through the bubble?



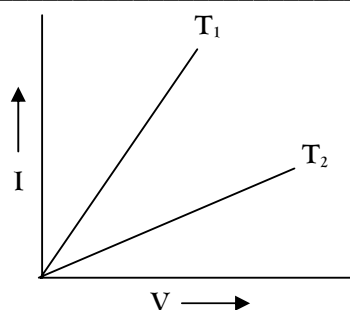
2. Study the figure given below. What will be the relation between I_1 and I_2 if both the resistances R_1 and R_2 are equal?



3. During summer season, a milkman usually adds a very small amount of baking soda to fresh milk. Give one reason.
4. Name two elements, which have intermediate properties between metals and non-metals.
5. Why silver chloride turns grey when kept in sunlight?
6. The following table gives the values of refractive indices of a few media.

S.No.	1	2	3	4	5
Medium	Water	Crown Glass	Rock salt	Ruby	Diamond
Refractive Index	1.33	1.52	1.54	1.71	2.42

- Use this table to give an example of (i) a medium pair so that light speeds up when it goes from one of these media to another. (ii) a medium pair so that light slows down when it goes from one of these media to another.
7. A housewife wanted her house to be whitewashed. She bought 10kg of quick lime from the market and dissolved it in 30 litres of water. On adding lime to water she noticed that the water started boiling even when it was not being heated. Give reason for her observation. Write the corresponding chemical equation and name the product formed.
8. State the rule to determine the direction of a magnetic field produced, around a current carrying conductor.
9. V-I graph for a metallic wire at two different temperatures, T_1 and T_2 is shown in the given figure. Which of the two temperatures is higher and why?



10. If your mouth smells of onion, which of the following solutions should be used to rinse the mouth to get rid of the smell and why?
- Sodium bicarbonate solution
 - Citric acid solution
11. What is an optical medium? How can we classify different media on the basis of their behaviour towards light?
12. A concave mirror produces three times enlarged image of an object placed at 10 cm in front of it. Calculate the radius of curvature of the mirror.
13. In which of the following chemical reactions, hydrogen gas is produced? Give the product(s) of the following reactions.
- Reaction of zinc with sodium hydroxide at high temperature.
 - Reaction of calcium with nitric acid.
 - Reaction of iron with steam.
14. A compound 'x' is green. On heating, it turns into grayish white powder 'y' and on further heating; it changes into reddish brown powder 'z'.
What are x and y? Write the reaction of conversion of y to z.
15. (a) Why does carbon form compounds mainly by covalent bonding?
(b) List any two reasons for a large number of carbon compounds.
(c) An organic acid 'X' is a liquid which often freezes during winters in cold countries, and has the molecular formula, $C_2H_4O_2$. On warming it with a compound Y, which is a constituent of alcoholic beverages, in the presence of a few drops of concentrated sulphuric acid, the product formed Y gives a fruity smell.
- Identify 'X' and 'Y'.
 - Write a chemical equation for the reaction involved.

OR

- What is a homologous series of compounds? List any two characteristics of the series.
- What would be observed on adding a 5% solution of alkaline potassium permanganate, drop by drop, to some warm ethanol taken in the test tube?
 - Write the name of the compound formed during the chemical reaction.
- How would you distinguish experimentally between an alcohol and carboxylic acid on the basis of their chemical properties?

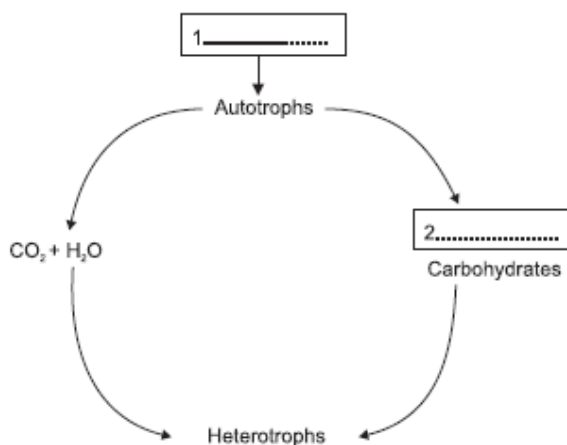
16. (a) Define Joule's law of heating.
 (b) Give any two practical applications of heating effect of current.
 (c) In a household electric circuit, different appliances are connected in parallel to one another. Give two reasons, why this is done.
 (d) An electrician puts a fuse of rating 5 A in that part of domestic electric circuit, in which an electrical heater of rating 1.5 kW, 220 V is operating. What is likely to happen in this case and why? What change, if any, needs to be made?

OR

- (a) If a student by mistake connects a voltmeter in series, or an ammeter in parallel of a circuit, what will happen?
 (b) An electric appliance draws a current of 0.4 A when the voltage is 200 volt. Calculate the amount of charge flowing through it in one hour.
 (c) Explain, how we classify materials as conductor and insulator on the basis of their resistance.

SECTION - B

17. Which pancreatic enzyme is effective in digesting proteins?
 18. What is the effect of DNA copying, which is not perfectly accurate in the reproduction process?
 19. Which one of the following is a renewable resource?
 Natural gas, Petroleum, Ground water, Coal
 20. Out of two solar cookers, one was covered by a plane glass slab and the other was left open. Which of the two solar cookers will be more efficient and why?
 21. In the flow chart given below, fill in the blank spaces with the kind of energy associated.



22. By comparing the similarity of nucleotide sequences in DNA of different kinds of organisms, evolutionary relationships can be established. Arrange the following according to their evolutionary closeness. (You may use your knowledge of classification also). Whose DNA among these do you think is most similar to that of humans?
 cockroach, mango tree, gorilla, fish

23. Study carefully the food chains given below:-

Food chain I: grass - grasshopper - frog

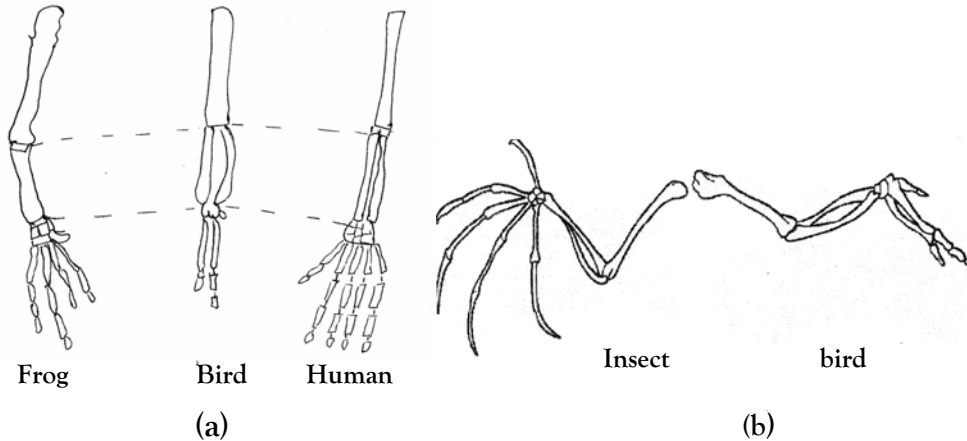
Food chain II: wheat - rat - snake - hawk

To which of the two consumers, frog or hawk, will more energy (percent) be available and why? 2

24. What do the following transport?

(i) xylem (ii) phloem (iii) pulmonary vein (iv) Vena Cava

25.



Suggest suitable captions for the above diagrams (a) and (b). What is their role in studying evolutionary relationships?

26. What is a solar cell? Mention two applications of solar cells. Also mention two factors adding to the cost of the solar cells.

27. Name the structures which help in ingestion in Amoeba and in Paramecium.

Draw a flowchart to explain the digestion of bread that you eat, through your digestive tract. Why it starts tasting sweet on chewing for some time?

OR

(a) Draw a well labeled diagram of human alimentary canal showing:

Gall bladder, liver, pancreas, small intestine.

(b) Describe the role of

(i) hydrochloric acid in our stomach

(ii) digestive enzymes