

SAHODAYA PRE-BOARD EXAMINATION-2021-22

Roll No:									Code No: 086
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CLASS-X SUBJECT: SCIENCE

- Please check that this question paper contains 7 printed pages.
- Check that this question paper contains 15 questions.
- Write down the Serial Number of the question in the left side of the margin before attempting it.
- 10 minutes time has been allotted to read this question paper. The question paper will be distributed 10 minutes prior to the commencement of the examination. The students will read the question paper only and will not write any answer on the answer script during this period.

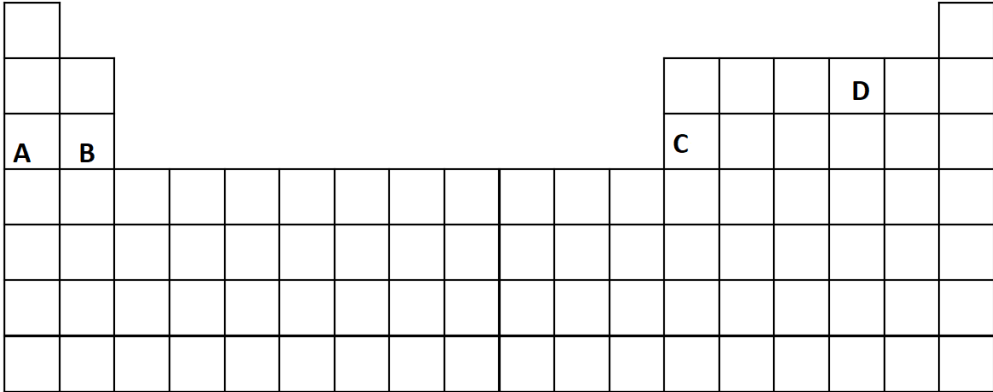
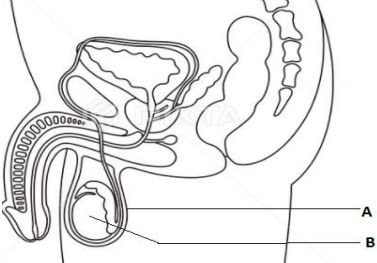
Maximum Marks: 40

Time Allowed: 2hrs

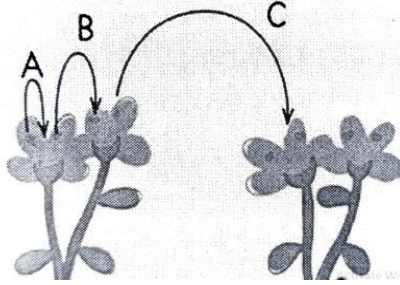
General Instructions:

- All questions are compulsory.
- The question paper has three sections and 15 questions. All questions are compulsory.
- Section–A has 7 questions of 2 marks each; Section–B has 6 questions of 3 marks each; and Section–C has 2 case based questions of 4 marks each.
- Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

SECTION-A			
1	Element	Atomic Number	2
	P	17	
	Q	6	
	R	3	
	S	14	

	<p>a. Identify the elements which belong to same group in the Modern Periodic Table.</p> <p>b. Mention the Formula of the compound formed by P and Q.</p> <p>c. Identify the metalloid from the given elements in the above table. Also mention the period and the group it belongs to.</p>	
2	 <p>a. Arrange the given elements in the increasing order of the metallic properties.</p> <p>b. Which of the above element will form electrovalent compounds with 'D'?</p> <p>c. What happens to the atomic size of the elements while moving down the group in the modern periodic table? Give reason.</p>	2
3	State the role of cotyledon and plumule in germination of seed.	2
4	 <p>a. Identify the parts A and B.</p> <p>b. State two functions of part B.</p>	2

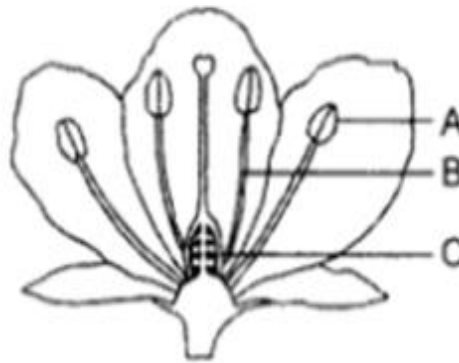
5



2

Study the above diagram and identify the case where maximum variation will occur.
Give reason for the same.

OR

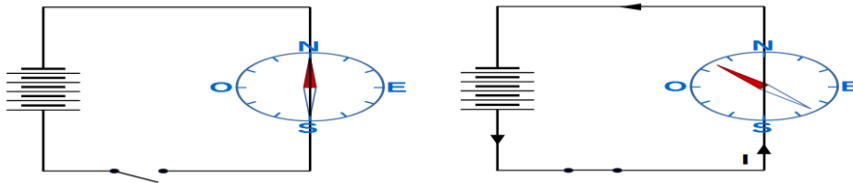


Reetika has brought a hibiscus flower to the class and asked her science teacher about the parts of a flower. The teacher has explained the parts and asked the students to draw the diagram. The teacher has told to identify the parts A and B and state one function of A.

6

A straight wire is placed parallel to and over a compass needle.

2



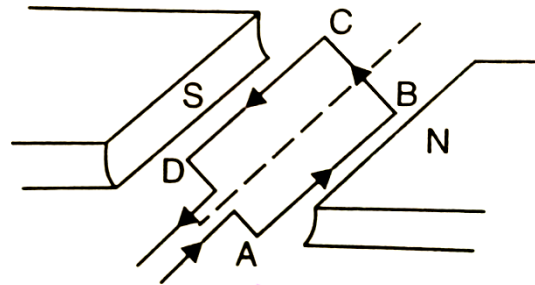
- When the key in the circuit is plugged, the compass needle shows deflection. Why?
- What will happen to the deflection of the needle when current in the wire is increased?

OR

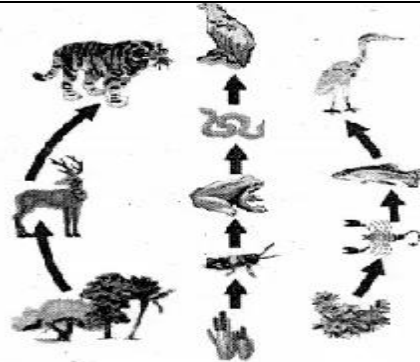
A coil ABCD mounted on an axle is placed between the pole N and S of a permanent magnet as shown in the figure.

(a) In which direction will the coil begin to rotate when current is passed through the coil in direction ABCD by connecting a battery at the ends A and D of the coil?

(b) Why is the commutator necessary?



7



2

From the above picture find out how many food chains are available. Name the organisms available as secondary consumers.

OR

a. Write down the appropriate term for trophic levels comprising of

- (i) the organisms which make their own food.
- (ii) animals feeding on plant only.

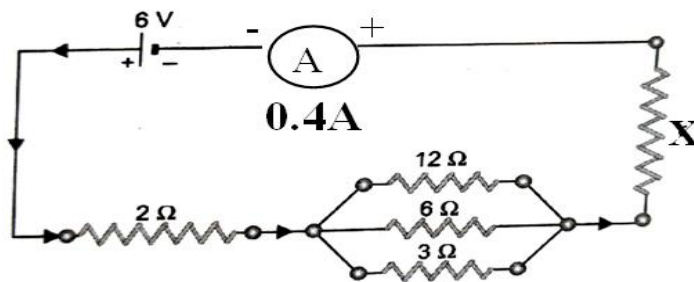
b. Construct a food chain from the picture given below.



SECTION-B		
8	<p>a. What will be the name and group of element X which belongs to second period and forms an ion X^{-2}?</p> <p>b. Write the name of the elements of the Modern Periodic Table that were suggested by Mendeleev as Eka- Aluminium and Eka- Silicon.</p> <p>c. An element 'Y' with atomic number 15 forms compound with another element 'Z' having electronic configuration 2, 8, 7.</p> <p>i) Identify Y and Z</p> <p>ii) Name the compound formed by them.</p>	3
9	<p>a. Write the molecular structure for a saturated hydrocarbon having 4 carbon atoms with molecular formula C_nH_{2n}. Also draw the electron dot structure of the compound.</p> <p>b. Give the straight chain molecular structure of the above compound and name it.</p> <p style="text-align: center;">OR</p> <p>A carbon compound 'A' has molecular formula $C_2H_4O_2$ that is commonly used as a preservative in pickles.</p> <p>a. Name the compound 'A' and mention the functional group it contains.</p> <p>b. Give the molecular structure of two homologues of 'A'</p>	3
10	<p>In a pea plant the trait of yellow seeds (YY) is dominant over green seeds (yy). Explain the inheritance pattern of F_1 and F_2 generation with the help of cross following the rules of inheritance of traits. Show the visible characters of F_1 and F_2 progeny and write the genotypic ratio and percentage of yellow seed bearing plants that are available in F_2 generation.</p>	3
11	<p>A bulb is rated 220V-200W. When it is used in a voltage supply of 110V,</p> <p>(a) Find the power consumed by the bulb.</p> <p>(b) Calculate the units of energy it will consume in 10 h.</p>	3

12

Carefully study the circuit diagram below and calculate the value of X.



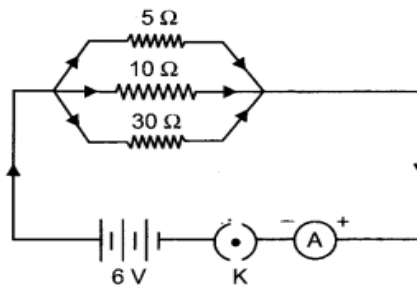
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OR

For the circuit shown in the diagram given:

Calculate:

- (a) the value of current through each resistor.
- (b) the total current in the circuit.
- (c) the total effective resistance of the circuit.



13

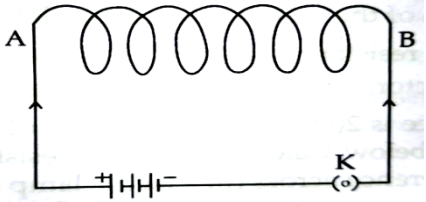
Pesticides are being used extensively for a high yield in the fields. These pesticides are absorbed by the plants from the soil along with water and minerals and from the water bodies. These pesticides are taken up by the aquatic animals and plants. As these chemicals are not biodegradable, they get accumulated progressively at each trophic level. The maximum concentration of these chemicals gets accumulated in different organisms greatly affects their health.

3

- a. Name the phenomenon involved.
- b. Why is the maximum concentration of pesticides found in human?
- c. Find the amount of energy that will be available to hawks in the food chain comprising hawk, snake, paddy and mice, if 10,000J of energy from the sun is available to paddy.

SECTION-C

This section has 02 case-based questions (14 and 15). Each case is followed by 03 sub-questions (a, b and c). Parts a and b are compulsory. However, an internal choice has been provided in part c.

<p>14</p>	<p>Sex determination is the method by which distinction between males and females is established in a species. The sex of an individual is determined by specific chromosomes. X and Y chromosomes are called sex chromosomes. The normal chromosomes other than the sex chromosomes of an individual are known as autosomes.</p> <p>a. What will be the sex of the embryo if an egg is fertilized by the sperm having (i) 22+X and (ii) 22+Y composition</p> <p>b. Name an animal which can change sex, indicating that sex is not genetically determined.</p> <p>c. “The sex of the child is determined by what they inherit from their father and not from their mother.” Justify.</p> <p style="text-align: center;">OR</p> <p>c. The equal genetic contribution of male and female parents is ensured in the progeny. Justify.</p>	<p>4</p>
<p>15</p>	<p>In a school laboratory, Sikha was performing an activity. She started with an insulated copper wire that she wrapped as coil of many turns such that it takes the shape of a cylinder. Then, she drew the following diagram. Based on your understanding, answer the following questions</p> <div style="text-align: center;">  </div> <p>a. write the special name given to the coil AB</p> <p>b. state the nature of magnetic field inside AB when current is passed through it.</p> <p>c. list two factors on which the strength of the magnetic field produced by AB depends.</p> <p style="text-align: center;">OR</p> <p>c. Redraw the diagram and sketch the pattern of magnetic field lines through and around the coil.</p>	<p>4</p>

