

PREBOARD QUESTION PAPER

CLASS X Science (086)

Term 2 (2021-22)

Max. Marks: 40

Time allowed: 2 hours

General Instructions:

- i) All questions are compulsory.
- ii) The question paper has three sections and 15 questions. All questions are compulsory.
- iii) 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.
- iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

SECTION A

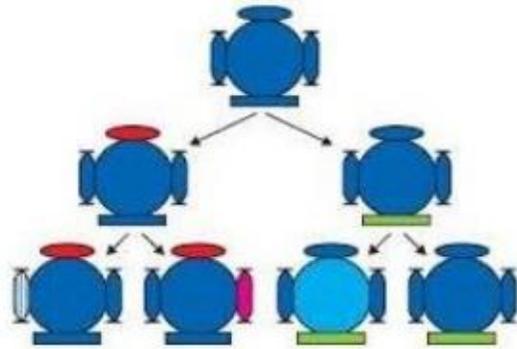
1.	Draw the structure of cycloalkane with molecular formula C_3H_6 . Write one open chain compound having this molecular formula. Write its IUPAC name.	2
2.	Explain any two methods of contraception.	2
3.	Element X forms a hydride with formula XH_3 , which is soluble in organic solvents. It belongs to 2 nd period of periodic table. Identify the element. Draw the electron dot structure for this compound.	2
4.	Malarial parasite divides into many daughter individuals simultaneously. Name the type of reproduction it undergoes. State an advantage the parasite gets because of this type of reproduction?	2
5.	Describe the sequence of events that take place when: Egg is not fertilized in human females. OR Pollen grains are transferred on the stigma of a flower.	2
6.	A child observed that iron filings arrange themselves in the form of concentric circles when they are sprinkled around a wire shown in the setup given below. Name and state the rule that he should use to determine the direction of magnetic field around the wire.	2

	 <p>State two possible changes that he may observe when the voltage source is increased to 24V?</p> <p style="text-align: center;">OR</p> <p>What is a solenoid? For the same current flowing through a solenoid and a straight conductor, the magnetic field produced by a solenoid is much stronger than the magnetic field produced by a straight current carrying conductor. State one reason to justify this statement.</p>	
7.	<p>How would you dispose the following wastes:</p> <ol style="list-style-type: none"> Domestic wastes like vegetable peels. Industrial wastes like metallic cans. <p style="text-align: center;">OR</p> <p>Name the chemicals responsible for the depletion of ozone layer. How is this continuous thinning of ozone layer harmful to humans?</p>	2

SECTION B

8.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">GROUP 1</th> <th style="width: 33%;">GROUP 2</th> <th style="width: 33%;">GROUP 17</th> </tr> </thead> <tbody> <tr> <td>A</td> <td></td> <td>F</td> </tr> <tr> <td>B</td> <td>D</td> <td>G</td> </tr> <tr> <td>C</td> <td>E</td> <td>H</td> </tr> </tbody> </table> <p>Out of A, B, C, D, E, F, G and H</p> <ol style="list-style-type: none"> Which element is most metallic and why? Which of them is most electronegative and why? Which of them will form a di positive ion and why? 	GROUP 1	GROUP 2	GROUP 17	A		F	B	D	G	C	E	H	3
GROUP 1	GROUP 2	GROUP 17												
A		F												
B	D	G												
C	E	H												
9.	<p>Carbon can neither form C^{4+} cation nor C^{4-} anion but forms covalent compounds. Justify the statement. Also, give reasons why covalent compounds are poor conductors of electricity?</p>	3												
10.	<p>a) The original organism at the top will give rise to two individuals, similar in body design but with subtle differences. Each of them in turn will give rise to two</p>	3												

individuals in the next generation. Each of the four individuals in the bottom row will be different from each other.



Creation of diversity over succeeding generations

What is the cause of differences in each generation?

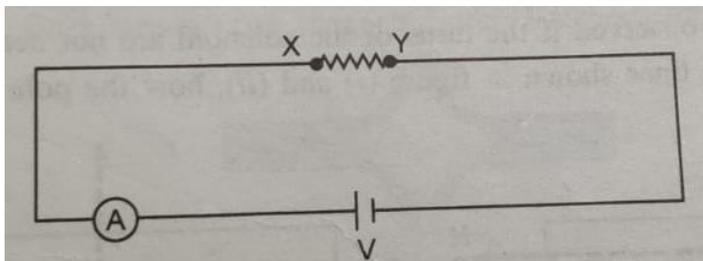
b) How does the creation of variations in a species promote survival?

11. a) Define Trophic level.
b) 'Our food grains such as wheat and rice, the vegetables and fruit and even meat are found to contain varying amounts of pesticide residues.' State the reason to explain how and why it happens?

3

12. A wire is connected between the points X and Y in the circuit to carry a current I . If it is replaced by a wire of
(i) same length and half thickness
(ii) half-length and same thickness, how will the current vary?

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OR

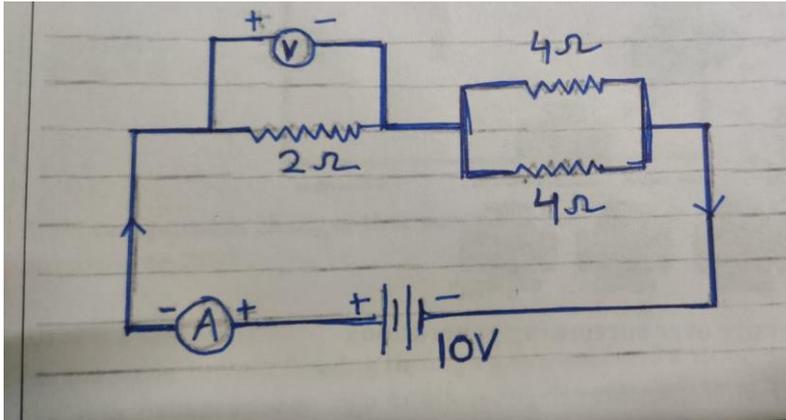
Two metallic wires A and B of the same material are connected in parallel. Wire A has length l and radius r , wire B has length $2l$ and radius $2r$. Compute the ratio of the total resistance of parallel combination and the resistance of wire A.

13. (a) State Joules law of heating
(b) Calculate the heat energy produced across a resistance of 40 ohms connected to 4 volts source for 5 minutes.

3

OR

Calculate the equivalent resistance, voltmeter and ammeter reading in the given case



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.

14. Study the given data and answer the following questions:

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Parental plants cross fertilized and seeds collected.	F ₁ (first generation offspring)	F ₂ (offspring of self pollination of F ₁)
Male parent always bore red flowers. Female parent always bore white flowers.	330 seeds sown and observed. All 330 gave plants with red flowers.	Out of 44 seeds, 33 seeds gave plants with red flowers and 11 seeds gave plants with white flowers.

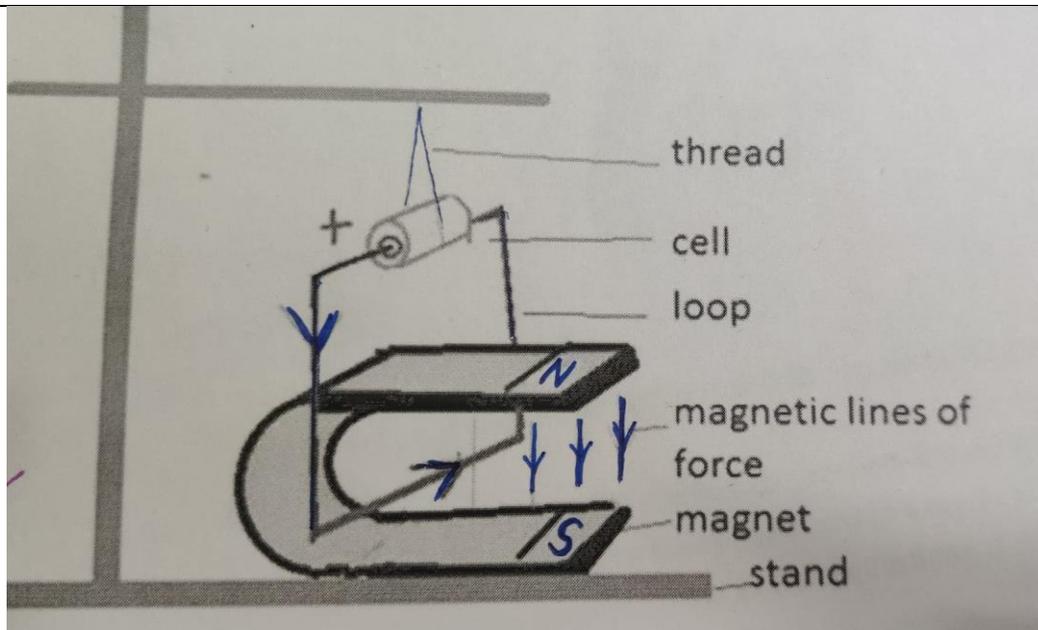
- a) What is the term used for this type of cross?
- b) What does the data of the column marked F₁ indicate?
- c) Express the genotype of the (i) Parents (ii) F₁ Progeny (iii) F₂ Progeny
And the genotype ratio of F₂ Progeny.

OR

Why did Mendel choose Garden pea plant for his experiments? Give two reasons.

15. (a) Observe the given diagram and answer the questions given below:

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- (a) Why does the current carrying wire experience a force when the current is switched on?
- (b) If the current through the wire is reduced to half by adding a resistance in the outer circuit, what will be the change in the magnitude of force on the wire? Justify your answer.
- (c) What will be the direction of force acting on the wire?
 State the law that will help in finding direction of force in the wire.
 OR
 State any two factors on which the force acting on a current carrying conductor when placed in a magnetic field depend and how?