



## SAMPLE QUESTION PAPER 2

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 must attempt only one of the alternatives in such questions.

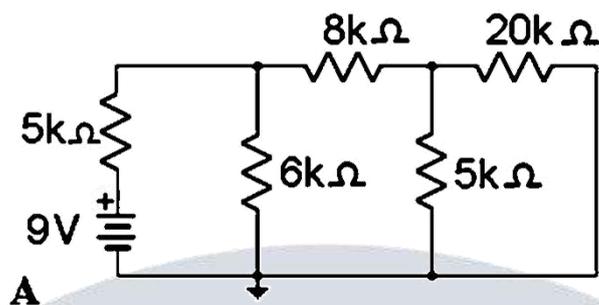
### SECTION - A

1.	The atomic numbers of the three elements X, Y and Z are 3, 10 and 18 respectively. a) Which two elements belong to the same group? b) Which two elements belong to the same period?	2
2.	An element X from group 2 of the periodic table reacts with an element Y from group 17 to form a compound. a) What is the nature of the compound formed? b) How many electrons are present in the outermost shell of an atom of element Y?	2
3.	Why do we need to adopt contraceptive measures?	2
4.	List any two differences between pollination and fertilization.	2
5.	The human beings who look so different from each other in terms of colour, size and looks are said to belong to the same species. Why? OR What are chromosomes? Explain how in sexually reproducing organisms the number of chromosomes in the progeny is maintained?	2
6.	a) What is meant by solenoid? b) How does a current-carrying solenoid behave? Give its main use. OR a) How is the strength of the magnetic field near a straight current-conductor related to the strength of the current in the conductor?	2

	b) How is the strength of the magnetic field near a straight current-conductor is affected by changing the direction of flow of current in the conductor?	
7.	Write a four trophic level food chain and represent it in the form of an ecological pyramid.  OR In a certain study conducted on the occurrence of DDT along food chains in an ecosystem, the concentration of DDT in grass was found to be 0.5 ppm. In sheep, it was 2 ppm and in man it was 10 ppm. Why was the concentration of DDT maximum in case of man?	2
<b>SECTION – B</b>		
8.	Consider the following elements: ${}_{20}\text{Ca}$ , ${}_{8}\text{O}$ , ${}_{18}\text{Ar}$ , ${}_{16}\text{S}$ , ${}_{4}\text{Be}$ Which of the above elements would you expect to be a) Very stable b) Most electropositive in nature c) In group 16 of the periodic table	3
9.	Consider the following hydrocarbons $\text{C}_3\text{H}_6$ , $\text{C}_4\text{H}_8$ , $\text{C}_5\text{H}_{10}$ a) To which homologous series does it belong? b) Out of these three which one of them has the highest boiling point? c) What happens to the chemical properties of this series?  OR What is catenation? Explain saturated and unsaturated compounds. Apart from carbon which two other elements exhibit the property of catenation?	3
10.	“It is a matter of chance whether a couple will have a male or a female child.” Justify this statement by drawing a flow chart.	3
11.	A torch bulb is rated 2.5 V and 250 mA. Calculate (i) its power, (ii) its resistance, and (iii) the energy consumed if this bulb is lighted for four hours.  OR A piece of wire of resistance $20\ \Omega$ is drawn out so that its length is increased to twice its original length. Calculate the resistance of the wire in the new Situation.	3

12.

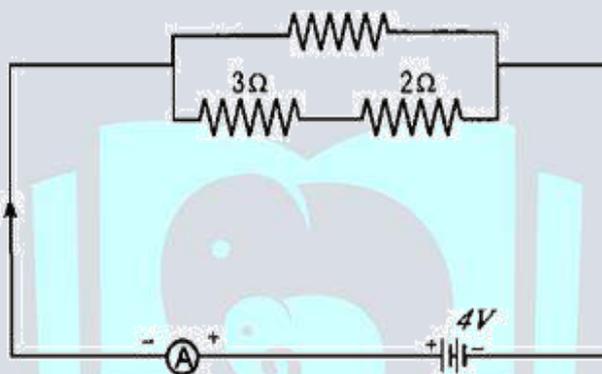
3



Calculate the total resistance of the circuit and find the total current in the circuit.

OR

If the current in the circuit is 2A, calculate the value of unknown resistance.



13

3

- How is ozone formed in the upper atmosphere?
- Why is the damage of ozone layer a cause of concern to us?
- State a cause of this damage.

### 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.

4

Study the given data and answer the questions following the data:  
Tina crossed two parental plants and collected their seeds. The male parent always produced purple flowers while the female parent always produced white flowers. All the F1 generation offspring were found to have purple flowers. However, in the F2 generation, she found that out of 44 seeds sown, about 33 had purple flowers while 10 had white flowers.

- What is the term for this type of cross?
- What does the data with respect to F2 generation indicate?
- Express the gene type of the (i) parents (ii) F1 progeny and (iii) F2 Progeny

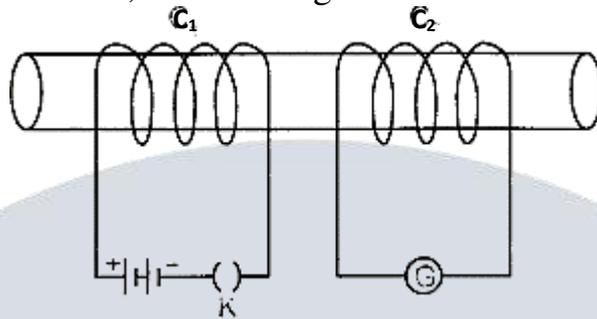
OR

Which law of Mendel is expressed in the above situation? State the law.

15.

Two coils of insulated copper wire are wound over a non-conducting cylinder as shown. Coil, I have a larger number of turns.

4



- (i) Write your observations when,  
(a) key K is closed,  
(b) key K is opened.

(ii) When the current is passed continuously through coil I. Give a reason for your observations.

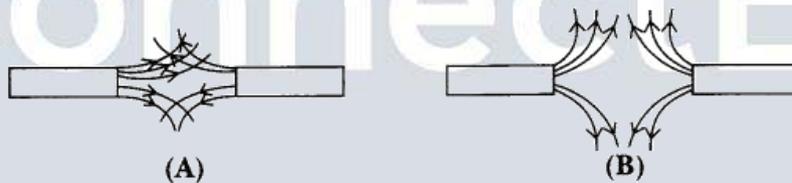
(iii) Name and state the phenomenon responsible for the above observation.

(iv) Write the name of the rule that is used to determine the direction of the current produced in the phenomenon.

(v) Name the two coils used in this experiment.

OR

Magnetic field lines of two magnets are shown in fig. A and fig. B.



a) Select the figure that represents the correct pattern of field lines. Give reasons for your answer.

b) Name the poles of the magnets facing each other.

c) What will happen if the magnetic field lines meet at a point?