PRABHU DAYAL PUBLIC SCHOOL
CLASS X SCIENCE
PRE BOARD (2021-22)

Time allowed: 2 hours **Max. Marks – 40**

General Instructions:

i) The questions paper has three sections and 15 questions.
ii) 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 study based questions of 4 marks each.
iv) Internal choices have been provided in some of the questions. A student has to attempt only one of the alternatives in each questions.

SECTION A

Q1.An electric oven of 2kW power rating is operated in a domestic circuit at 220V that has a fuse of current rating of 5A. What results do you expect? Explain.

Q2.What is a Solenoid? Draw the pattern of magnetic field lines through a current carrying Solenoid.

Q3.What happens to the atomic size as we move from left to right in a periodic table? Explain.

Q4.Draw the electron dot structure of Ethane.

OR

Why carbon forms large number of compounds? How does carbon acquire stable configuration?

Q5.What happens to the atomic size as we move down in a group in a modern periodic table?

Q6. i) How do Mendel's experiments show that traits may be dominant or recessive?
ii) Why did Mendel choose Garden Pea plant for his experiments?

Q7.i) Mention any two sexually transmitted diseases.
ii) How does the embryo get the nourishment inside the mother's body?

SECTION B

Q8. (a) List the factors on which Resistance of a conductor depends. Write the expression for the resistivity of a substance.

(b) What will happen to the resistivity of a wire when it is cut into 2 equal parts?

Q9. A coil of insulated copper is connected to a galvanometer. What will happen if a bar magnet is (a) pushed into the coil (b) held stationary inside the coil (c) withdrawn from inside the coil.

OR

Q9.(a) How will the magnetic field produced at a point due to a current carrying circular coil change (i) if we increase the current flowing through the coil.(ii) reverse the direction of the current.

(b) If the circular coil has n number of turns, why does magnetic field increases n times as large as that produced in single turn?

Q10. Two elements M and N belong to group I and Group 16 respectively of II (same) period of the periodic table. Answer the Following questions:(where M and N are not the symbols of elements).

a) What is their electronic configuration?
b) Write the formula of compound formed between M and N.

Q11. (a) What is homologous series of carbon compounds? Write any two properties of it.

(b)Write the name and structure of a saturated compound in which carbon atoms are arranged in a ring.

Q12. How is the sex of a child determined in human beings? Support your answer with the help of a suitable labelled diagram.

Q13. Show the germination of pollen on stigma in a flowering plant with the help of a diagram. Describe the process of pollination and fertilization.

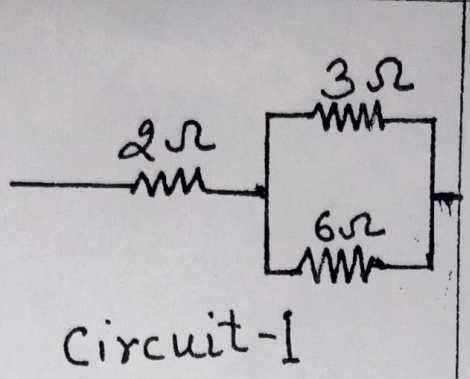
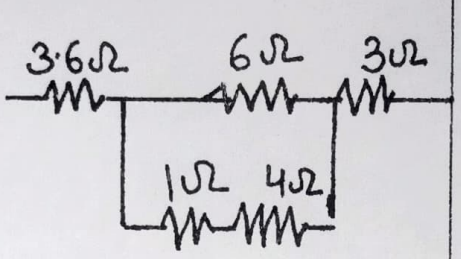
SECTION C

This SECTION has 2 case study based Questions. Each case is followed by sub questions.

Q14. Pesticides are sprayed to kill the pests on food plants. The food plants are eaten by the herbivores, and along with the food plants pesticides are also eaten by the herbivores. Herbivores are further eaten by the carnivores. Humans eat both the plants and the animals and pesticides along with the food enters the body of humans.

a) Why is the use of pesticides DDT discouraged?
b) Explain the phenomenon responsible for the accumulation of chemicals in the humans.
c) What is the role of decomposers in an ecosystem?
d) Construct an aquatic food chain showing four trophic levels.

Q15. Two students A and B measured the equivalent resistance as shown in the given table:

Student	Circuit	Equivalent Resistance
A	 Circuit-1	4 Ω
B	 Circuit-2	3.4 Ω

(a) Which physical quantity remains same across the combination of 3 Ω and 6 Ω in circuit-1 and combination of 6 Ω along the combination of 1 Ω and 4Ω in circuit- 2? (1)

(b) Which student measured the wrong equivalent resistance? Show by calculations. (2)

(c) In circuit-1 if total amount of 4A of current is flowing then, what will be net potential difference in this circuit? (1)