



**SAMPLE PAPER 1 TERM 2**

**Class 10 - Science**

**Time Allowed: 2 hours**

**Maximum Marks: 40**

**General Instructions:**

1. All questions are compulsory.
2. The question paper has three sections and 15 questions. All questions are compulsory.
3. 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.
4. Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

**Section A**

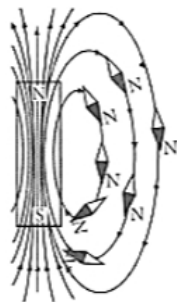
1. i. The formulae of two organic acids X and Y are  $C_{10}H_{21}COOH$  and  $C_{19}H_{39}COOH$ . Which of them exists in the liquid state at room temperature? [2]  
ii. What will be the formula and electron dot structure of cyclopentane?
2. Carbon (atomic number 6) and silicon (atomic number 14) are elements in the same group of the periodic table. [2]  
i. Give the electronic arrangements of the carbon and silicon atoms.  
ii. State the groups in which these elements occur.
3. The sperms are tiny bodies that consist of mainly genetic material and a long tail [2]  
i. Where are the sperms produced and What is the role of the long tail?  
ii. How are the sperms delivered from the site of their production?
4. i. Which glands provide fluid to the semen? [2]  
ii. State two advantages of semen in relation to sperms.
5. A Mendelian's experiment consist of breeding a pea plant bearing violet flowers with pea plant that bear white flowers. What will be the result in  $F_1$  progeny? [2]

OR

A man with type A blood has a wife with type B. They have a child with type O blood. Give the genotype of all the three. What other blood groups can be expected in the future offspring of this couple?

6. A magnetic field is described by drawing the magnetic field lines. When a small north magnetic pole is placed in the magnetic field created by a magnet, it will experience a force. And if the north pole is free, it will move under the influence of the magnetic field. The path traced by a north magnetic pole free to move under the influence of a magnetic field is called [2]

a magnetic field line.



- i. Do the magnetic field lines intersect each other? If not why?
  - ii. A strong bar magnet is placed vertically above a horizontal wooden board. What will be the magnetic lines of force?
7. What is the dam? Why do we seek to build large dams? While building large dams, which three main problems should particularly be addressed to maintain peace among local people? Mention them. [2]

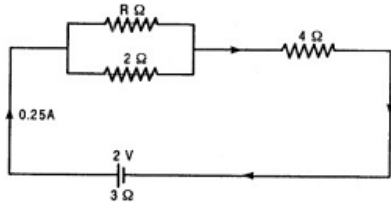
### Section B

8. Consider the given formulae of compounds KOH,  $\text{NH}_3$ , HCl,  $\text{Al}_2\text{O}_3$ ,  $\text{Mg}(\text{OH})_2$ . Choose the [3]
- i. compound which consists a non-metal with oxidation state of -3.
  - ii. compound with most electropositive element.
  - iii. compound with a metal having valency 3.
9. [3]
- i. Why -CHO group cannot be present in the middle of the carbon atom chain?
  - ii. What is a homologous series? State any two characteristics of homologous series?

OR

- i. Where do compounds of carbon find applications?
  - ii. Give three characteristic properties of covalent compounds.
10. In pea plant, round seed is dominant over the wrinkled. If a cross is carried out between these two plants, give answer to the following questions. [3]
- i. Mention the genes for the traits of parents.
  - ii. State the trait of  $F_1$  hybrids.
  - iii. Write the ratio of  $F_2$  progeny obtained from this cross. What is the name of the cross?
11. [3]
- i. An electric heater is rated at 2kW. Electrical energy costs ₹4 per kWh. What is the cost of using the heater for 3 hours?
  - ii. You have two electric lamps having rating 40W, 220V and 60W, 220V. Which of the two has a higher resistance? Give reason for your answer. If these two lamps are connected to a source of 220V, which will glow brighter?
12. The following circuit diagram shows three resistors  $2\Omega$ ,  $4\Omega$ ,  $R\Omega$  connected to a battery of e.m.f. 2V and internal resistance  $3\Omega$ . A main current of 0.25 A flows through the circuit. [3]
- a. What is the potential difference across  $R\Omega$  and  $2\Omega$  resistors ?

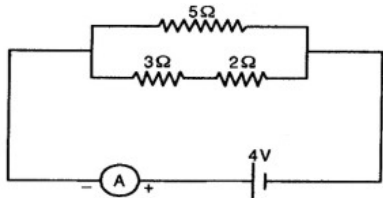
b. Calculate the value of R.



OR

In a circuit find

- i. total resistance
- ii. current shown by ammeter.



13. A lake has been polluted by sewage. On comparison with the sample of unpolluted water, the water in the lake is found to have increased contents of some components. Identify these components. [3]

### Section C

14. **Read the Case study followed by 3 questions Part (i) and (ii) are compulsory. However, an internal choice has been provided in part (iii):** [4]

In human, the allele for brown eyes (B) is dominant over that for blue eyes (b). A brown-eyed woman marries a blue-eyed man, and they have six children. Four of the children are brown-eyed and two of them are blue-eyed.

- i. What is the genotype of blue-eyed offspring?
- ii. What is the woman's genotype?
- iii. What is the gene carried by the mother's ovum regarding the eye color?

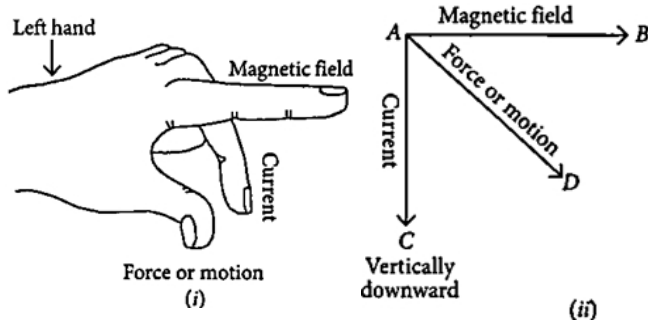
OR

What is the gene carried by the man's sperm regarding the eye color?

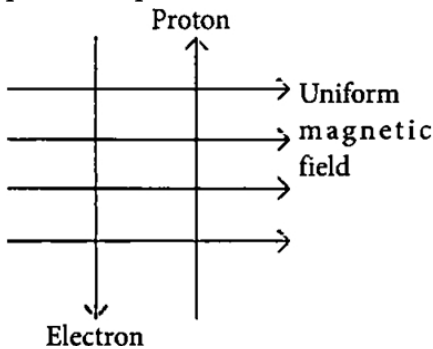
15. **Read the Case study followed by 3 questions Part (i) and (ii) are compulsory. However, an internal choice has been provided in part (iii):** [4]

Andre Marie Ampere suggested that a magnet must exert an equal and opposite force on a current carrying conductor, which was experimentally found to be true. But we know that current is due to charges in motion. Thus, it is clear that a charge moving in a magnetic field experience a force, except when it is moving in a direction parallel to it. If the direction of motion is perpendicular to the direction of magnetic field, the magnitude of force experienced depends on the charge, velocity (v), strength of magnetic field (B), and sine of the angle

between  $v$  and  $B$ . Direction of magnetic force is given by Fleming's left hand rule.

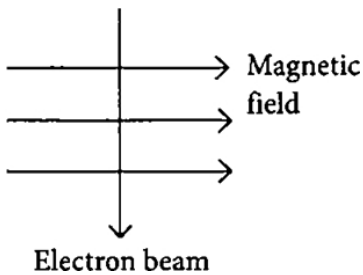


- i. If an electron is travelling horizontally towards east. A magnetic field in vertically downward direction exerts a force on the electron along which direction?
- ii. If a charged particle is moving along a magnetic field line. Then What would be the magnetic force on the particle?
- iii. A uniform magnetic field exists in the plane of paper pointing from left to right as shown in figure. In the field, an electron and a proton move as shown. Where do the electron and the proton experience the force?



OR

An electron beam enters a magnetic field at right angles to it as shown in the figure. What would be the direction of force acting on the electron beam?



**Click Here for solutions <https://youtu.be/a7jMINbmsi8>**

**Please subscribe the channel also**