

**Sample Paper 8**  
**CLASS X (2021-22) Term 2**  
**SCIENCE (CODE 086)**

**Time: 2 Hours**

**Max. 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.
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**Section A**

1. (a) What is denatured alcohol ?  
(b) How many covalent bonds does a molecule of ethane ( $C_2H_6$ ) have? Draw its structure to justify your answer.
2. An element has the electronic configuration 2, 8, 3. What is the atomic number of this element? To which  
(i) group, and (ii) period does this element belong ?
3. In tobacco plant, the male gametes have 24 chromosomes. State the number of chromosomes in  
(i) egg nucleus, (ii) zygote, (iii) endosperm and (iv) leaf cell.
4. State in brief the function of the following organs in the human female reproductive system :  
(a) Ovary  
(b) Fallopian tube
5. State the mode of reproduction in following organisms: Earthworm, Frog, Rhizopus, Plasmodium  
**or**  
Name the sex hormones secreted by male and female sex organs in human beings. State one function of each.
6. A current-carrying straight conductor is placed in east-west direction. What will be the direction of the force experienced by this conductor due to the earth's magnetic field ? How is this force affected on :  
(a) reversing the direction of flow of the current ?  
(b) doubling the magnitude of the current ?

**or**

A student while studying the force experienced by a current carrying conductor in a magnetic field records the following observations :

- (i) The force experienced by the conductor increases as the current is increased.
- (ii) The force experienced by the conductor decreases as the strength of the magnetic field is increased.

Which of the two observations is correct and why ?

7. Which one of the following food habits is better and why ?
- (a) Plant → Man.
  - (b) Plant → Goat → Man

**or**

Name the sources from where the green plants obtain C, H and O.

## Section B

8. The elements of the second period of the Periodic Table are given below :  
Li, Be, B, C, N, O, F, Ne
- (a) Give reason to explain why atomic radius decreases from Li to F.
  - (b) Identify the most metallic and non-metallic elements.
  - (c) How does valency change from Li to Ne.

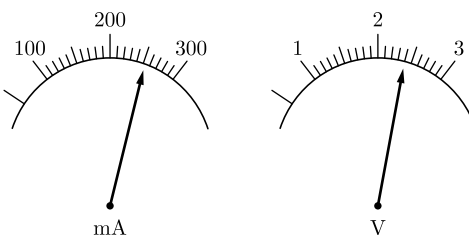
9. Three elements X, Y and Z have atomic numbers 7, 8 and 9 respectively :
- (a) State their positions (Group number and period number both) in the modern periodic table.
  - (b) Arrange these elements in the decreasing order of their atomic radii.
  - (c) Write the formula of the compound formed when X combines with Z.

**or**

An element *X* has atomic number 19.

- (a) Write its electronic configuration.
  - (b) To which group of the Modern Periodic Table does it belong ?
  - (c) State the nature of the compound formed by element *X* with chlorine.
10. (a) What is the role of autosomes?  
(b) Why is it that offspring receives traits from both the parents.
11. (a) Define the term volt.  
(b) State the relation between work, charge and potential difference for an electric circuit. Calculate the potential difference between the terminals of a battery if 100 joules of work is required to transfer 20 coulombs of charge from one terminal of the battery to the other.
12. The current flowing through a resistor connected in a circuit and the potential difference developed across its ends are as shown in the diagram by milliammeter and voltmeter readings respectively :
- (a) What are the least counts of these meters?

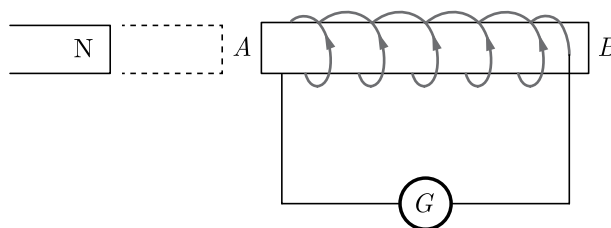
- (b) What is the resistance of the resistor?



or

The diagram below shows a coil connected to a center zero galvanometer  $G$ . The galvanometer shows a deflection to the right when the  $N$  pole of a powerful magnet is moved to the right as shown.

- Explain why the deflection occurs in the galvanometer.
- Does the direction of current in the coil appear clockwise or anti-clockwise when viewed from end  $A$ ?
- State the observation in  $G$  when the coil is moved away from  $N$ .



13.
  - What is the height of ozone from the equator ?
  - Name the rays against which ozone layer provides protection.
  - Name one effect of depletion of ozone.

## 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. Answer given questions on the basis of your understanding of the following paragraph and the related studies concepts.
- Reproduction in human beings is by sexual reproduction where both the male and female gametes fertilise to give rise to an embryo. The fertilization of the human embryo occurs inside the body of the female.



- (i) Name the part of the male reproductive system where the formation of sperms takes place.
- (ii) What is the other name of the oviduct?
- (iii) What is the placenta ?

**or**

Define the term implantation.

- 15.** Read the following case based passage and answer the questions given after passage.
- An electrician is a tradesman specializing in electrical wiring of buildings, transmission lines, stationary machines and related equipment. Electrician may be employed in the installation of new electrical components or the maintenance and repair of existing electrical infrastructure. An electrician has made electric circuit of a house in such a way that if a fan is closed, the lamps also stop glowing.
- (i) What is the defect in this type of circuit wiring? Why ?
  - (ii) Two resistances  $R_1$  and  $R_2$  are connected turn by turn in parallel and in series. In which case, the resultant resistance will be less than either of the individual resistances ?
  - (iii) Which is the better way to connect lights and other appliances in domestic circuit series connection or parallel connection ?

**or**

In which type of combination different resistors will have equal value of electric current through them ?

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