Sample Paper 7

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.

Section A

1. (a) Why are most carbon compounds poor conductors of electricity?
   (b) Write the name and structure of a saturated compound in which the carbon atoms are arranged in a ring. Give the number of single bonds present in this compound.

2. (a) State Modern Periodic Law.
   (b) Elements A, B, C and D have atomic numbers 1, 8, 11 and 19 respectively. Choose the odd element and give reason for your answer.

3. (a) List two reproductive parts of a flower.
   (b) How is a unisexual flower different from a bisexual flower? State in brief.

4. (a) Why is vegetative propagation practised for growing some types of plants ?
   (b) Name the different parts of a flower that has germ cells.

5. Define reproduction. How does it help in providing stability to the population of species?

or

What are the advantages and disadvantages of asexual reproduction?

6. How will the magnetic field produced in a current carrying a circular coil change if we
   (i) increase the value of current ?
   (ii) increase the distance from the coil ?

or

   (a) Swati draws magnetic field lines of field close to the axis of a current carrying circular loop. As she moves away from the centre of the circular loop she observes that the lines keep on diverging. How will you explain her observation ?
   (b) Write two properties of magnetic field lines.

7. What is biodiversity ? What will happen if biodiversity of an area is not preserved ? Mention one effect of it.

or

What will happen if all the carnivore our are removed from the earth ?

Section B

8. Three elements A, B and C have atomic numbers 7, 8 and 9 respectively.
   (a) What would be their positions in the Modern Periodic Table (Mention group and period both).
   (b) Arrange A, B and C in the decreasing order of their size.
   (c) Which one of the three elements is most reactive and why ?

9. Draw the structural formulae of all the possible isomers of the compound with the molecular formula C_3H_6O and also give their electron dot structures.

10. An angiosperm plant having red coloured flowers when crossed with the other having the same colour produced 40 progenies out of which 30 plants were with red coloured flowers 10 plants were with white colour flowers.
   Finds out :
   (a) What is the possible genotype of parent plants ?
   (b) Which trait is dominated and recessive?
   (c) What is this cross called as and what is its phenotyping ratio ?

11. State Joules law of heating. List two special characteristics of a heating element wire.
   An electric iron consumes energy at the rate of 880 W when heating is at the maximum rate and 440 W when the heating is at the minimum rate. The applied voltage is 220 V. Calculate the current and resistance in each case.

12. An electric heater connected to a 220 V line has two resistance coils of 22 Ohms each.
   Calculate the current if these coils are used
   (a) Separately
   (b) In series
   (c) In parallel.

or

By applying right hand thumb rule, show that magnetic lines of force at the center of the circular current-carrying wire are straight lines in the inward direction when current is clockwise. What happens when the current is reversed?

13. (a) What is full form of (i) UNEP (ii) CFCs.
   (b) On what basis are organisms grouped as producers, consumers and decomposer ?
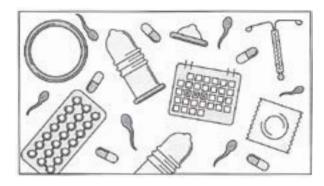   (c) Write two problems that would arise if there were no decomposer in are ecosystem.

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.

The sexual act always has the potential to lead to pregnancy will make major demands on the body and the mind of the woman and if she is not ready for it, her health will be adversely affected. Therefore, many ways have been devised to avoid pregnancy.

(i)   Name any two bacterial diseases that are caused due to unprotected sex.
(ii) In what a pill helps in preventing pregnancy?
(iii) What is vasectomy?

or

What are the common side-effects of using contraceptive pills?

15. Read the following case based passage and answer the questions given after passage.

Resistance of a conductor depends on the length, area of cross-section and nature of the material of the conductor. When a conductor is stretched (increased in its length), then its area of cross-section decreases accordingly but the volume (i.e. area x length) of the conductor remains same.

Resistivity of conductor,

$$\rho = \frac{RA}{l}$$

Where, A = area of cross-section of conductor

   l = length of conductor

(i)   What do you mean by resistivity ?
(ii) What is the SI unit of resistivity of conductor ?

(iii) Write one difference between resistance and resistivity.

or

The resistance (R) of a wire of length is halved and area of cross-section (A) is doubled, what is the new resistance (R') ?

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