SAMPLE QUESTION PAPER

CLASS X

Science (086)

Term 2 (2021-22)

Max. marks:40 Time allowed: 2 hours

General instructions:

i) All the 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 has 2 case based questions of 4 marks each.

iv) Internal choices have been provided in some questions. A student has to attempt only one 0f the alternatives in each questions.

SECTION – A

1. The following table shows the electronic configurations of four elements. (2)

ELEMENTS	ELECTRONIC CONFIGURATION
A	2,6
B	2,6,1
C	2,8,7
D	2,8,8

a. What is the valency of element D ? Identify the element.

b. Which elements will have biggest atomic radius?

2. The formulae of four organic compounds are given below: (2)

A	B	C	D
C_2H_4	CH_3COOH	C_2H_5OH	C_2H_6

i. Which one of these compounds A , B , C , D is a saturated hydrocarbons?

ii. Identify the alcohol and give its structural formula.

3. a. What is meant by vegetative propagation? How is it beneficial to plant? (2)

b.How do unisexual plant differ from bisexual plant?

4. a. what is the fate of ovules and the ovary in a flower after fertilization? (2)

b. why is fertilization not possible without pollination?

5. A green stemmed rose plant denoted by GG and a brown stemmed rose plant denoted by gg are

allowed to undergo a cross with each other. (2)

i.What will be the colour of stem in their F_1 progeny?

ii. Percentage of brown stemmed plant in f_2 progeny if F_1 plants are self pollinated.

OR

i.Why did mendel choose garden pea plant for his experiments? Give two reasons.

ii. List two contrasting visible characters of garden pea plant mendel used for his experiment.

6. What is solenoid ? Draw the pattern of magnetic field lines of a current carrying conductor. (2)

OR

A coil of insulated copper is connected to a galvanometer. What happens if a bar magnet is :

i.Pushed into the coil?

ii. held stationary inside the coil?

Give reasons for your observations.

7. In a given food chain, suppose the amount of energy at fourth trophic level is 2 KJ. What will be the Energy available at producer level? (2)

Grass ⟶ Grasshopper ⟶ Frog ◂ snake

SECTION – B

8.i. The atomic number of an element is 12. Examine if this element will have metallic properties or not. Give reasons to justify your answer. (3)

ii. explain the term electropositivity.

9.i. Draw an electron dot structure of one saturated hydrocarbon and one unsaturated hydrocarbon. (3)

ii. how will you prove that CH_4 and C_2H_6 are homologues?

OR

A carbon compound ' X ' with molecular formula CH_4O is soluble in water in all proportions.

i. Identify ‘ X ’ and draw its electron dot structure.

ii. Give the molecular formulae of any two homologues of ‘ A ’.

10.” The sex of a newborn child is a matter of chance and none of the parents may be considered responsible for for it.” Justify this statement with the help of a flow chart showing sex determination in human beings. (3)

11. A bulb is rated at 200 V – 40W. (3)

i. What is its resistance ?

ii. 5 such bulbs are lighted for 5 hours. Calculate the electrical energy consumed.

iii. find the cost if the rate is 5.10 per KWh.

12. An electrical lamp of resistance 20 ohms and a conductor of resistance 4 ohms are connected to a 6 V battery as shown in the circuit. Calculate: (3)

i.The total resistance of the circuit.

Ii. The current through the circuit.

iii. The potential difference across the lamp.

OR

i.What are magnetic field lines ?

ii. Draw the pattern of magnetic field produced around a current carrying straight conductor.

iii. State and apply right- hand thumb rule to mark the direction of the field lines.

13.i. Write the essential function performed by ozone at the higher levels of the earth’s atmosphere ?

ii. How is ozone produced ? (3)

iii. Why the amount of ozone in the atmosphere dropped sharply in the 1980 ?

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 internal choice has been provided in part c.

14. Pea plant can have smooth seeds (RR) and wrinkled seeds (rr). One of the phenotypes is completely dominant over the other. A farmer decided to pollinate one flower of a plant with smooth seeds using pollen from plant with wrinkled seeds. The resulting pea pod has all smooth seeds. (4)

i. Give reason why only pea pods with smooth seeds are only observed in F_1 progeny.

ii. what will be the set of genes present in F_1 generation ?

iii. 400 plants were obtained when F_1 plants were self pollinated . how many of these would be tall or short plants?

OR

State the ratio of smooth seeds to wrinkled seeds in F_2 generation. state the type of seeds not found in F_1 generation but appeared in F_2 generation.

15. When magnet is brought into the field of another magnet , the field interacts with each pole of the magnet and each of these poles experience magnetic force. The space surrounding the magnet is where a magnetic force is experienced is called magnetic field. A magnetic field is a continous curve in a magnetic field such that the tangent at any point on it gives the direction of magnetic field at a point.

Based on above given information , answer the following questions. (4)

i.Where is the magnetism minimum in bar magnet ?

ii. Give two methods to produce magnetic field ?

iii. How can it be proved that a magnetic field exists around a current carrying metallic wire?

OR

Why do magnetic field lines never intersect ?

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