SAMPLE QUESTION PAPER -II
CLASS X (CBSE)
Science - Term 2 - Full Test
(2021-22)

Max. Marks: 40 **Time allowed: 2 hrs**

General Instructions:

1. All questions are compulsory.
2. The question paper has 15 questions divided into three sections A, B and C.
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 (2)

Observe the table given below and answer the following question:

Compounds	General formula
Propane	C_3H_8
Propyne	C_3H_4
Cyclopropane	C_3H_6

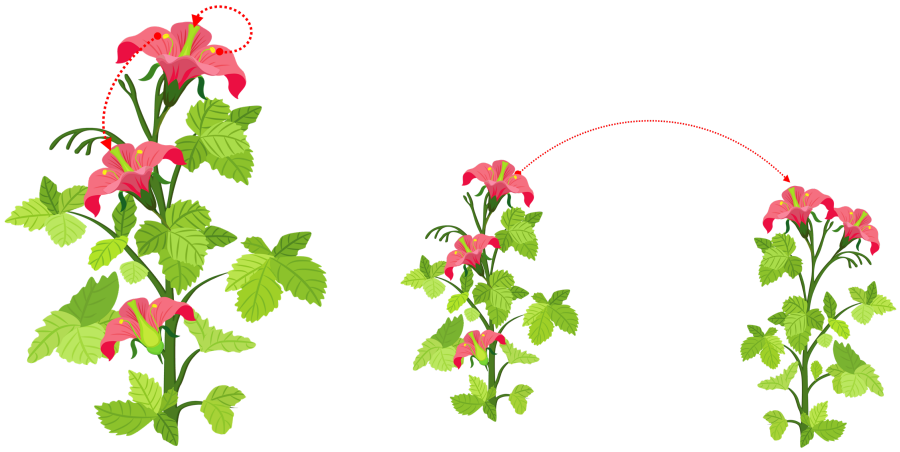
a) Arrange the compounds in the ascending order according to the number of covalent bonds present in them.

b) Define a homologous series and write the chemical formula of the compound which is the next homologue of propyne.

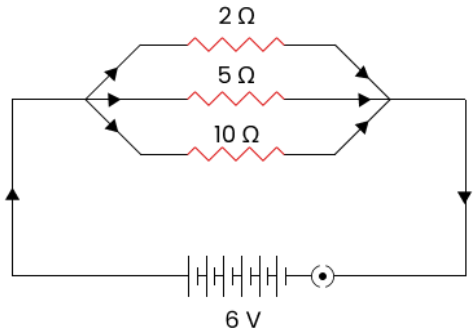
2 (2)

Observe the table given below and answer the following question:

Elements	Atomic number
A	10
B	14
C	32
D	1

	Write the electronic configuration of the elements A, B, C, and D along with the period and group to which they belong in the modern periodic table.	
3	A straight current carrying conductor is placed in the east-west direction such that the current is going from east to west. a) What will be the direction of the force experienced by this conductor due to Earth's magnetic field? b) How will this force get affected upon i. reversing the direction of current ii. doubling the magnitude of current ***OR,*** What is the function of an earth wire? Why is it necessary to earth metallic appliances?	2
4	Define Mendel's Law of Independent Assortment. Which two characters of pea plant did Mendel select for dihybrid cross?	2
5	Write a note on androecium and gynoecium. ***OR,*** Observe the figure. Answer the following:  A B a) Identify the processes depicted in the image A and B. b) Define the processes A and B.	2
6	Two bulbs A and B are rated (100 W, 120 V) and (10 W, 120 V) respectively. They are connected across a 120 V source in series. Calculate the amount of current drawn by this combination?	2
7	For an ecosystem, all the organisms of different trophic levels depend on each other at a certain level for their survival.	2

	What will happen if organisms of a particular trophic level in a small ecosystem become extinct? Justify your answer. ***OR,*** In an ecosystem, what will be the amount of energy available to the organism of the third trophic level of a particular food chain if the energy available at the first trophic level is 7000 kcal? What happens with the rest of the energy?	
	SECTION B	
8	Study the table given below and answer the following questions: <table><tr><th>Group → Period ↓</th><th>1</th><th>2</th><th>13</th><th>14</th><th>15</th><th>16</th><th>17</th><th>18</th></tr><tr><td>2</td><td>Li</td><td>Be</td><td>B</td><td>C</td><td>N</td><td>O</td><td>F</td><td>Ne</td></tr><tr><td>3</td><td></td><td>Mg</td><td></td><td>Si</td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td>K</td><td></td><td></td><td>Ge</td><td></td><td></td><td></td><td>Kr</td></tr></table>a) Which element in the table has the most metallic character? Why? b) Write the increasing order of the atomic size of group 14 elements. Give reason. c) Write the number of valence electrons in Mg and Ne.	3
9	Answer the following questions: a) Differentiate between alkanes and alkenes with an example of each. b) Identify which of the following open-chain organic compounds can have a triple bond? What are their respective names? C_4H_{10}, C_2H_6, C_2H_2, C_3H_6 ***OR,*** Two saturated hydrocarbons 'X' and 'Y' have the molecular formula C_3H_6O and $C_2H_4O_2$. a) Draw the lewis dot structure for X and Y. [Hint: X is an isomer of propanal and Y is the next homologue of HCOOH] b) Name the functional group present in X and Y.	3
10	a) Name the human male reproductive organ that produces sperms and also secretes a hormone. Write the function of the secreted hormone. b) Name the parts of human female reproductive system where (i) fertilisation takes place (ii) implantation of the fertilised egg occurs c) Explain how the embryo gets nourishment inside the mother's body.	3

	OR a) Draw a diagram of the human female reproductive system and label the parts: (i) which produces an egg (ii) where fertilisation takes place b) List two bacterial diseases which are transmitted sexually. c) What are contraceptive devices? Give two reasons for adopting contraceptive devices in humans.	3
11	Answer the following questions: a) State the principle of an electric motor. b) What is the role of the split ring in an electric motor? c) State two ways by which the speed of rotation of an electric motor can be increased.	3
12	A copper wire has a diameter of 1.4 mm and resistivity of 2.2×10^{-6} ohm cm. How much of this wire would be required to make a 10 ohm coil? How much does the resistance change if the diameter is doubled? ***OR,*** In the circuit diagram given below, calculate: a) the current through each resistor b) the total current in the circuit c) the total effective resistance of the circuit  	3
13	Ozone forms a protective layer in the upper stratosphere that helps to absorb harmful UV lights coming from the Sun. But generating and emitting high amounts of CFC gas to the atmosphere causes the depletion of the Ozone layer. a) What is the role of free oxygen atoms and free Cl atoms in the formation and depletion of the ozone layer? b) What measures can be taken to prevent the depletion of the ozone layer?	3
SECTION C		

14	Kevin was going to the physics lab where his friends were doing an experiment with a closed electric circuit. Kevin came running towards his friends to see what they're up to. On his arrival, they all had a strange observation where the light bulb connected to the circuit glowed for an instant. They were surprised with this observation as the circuit was not connected to any battery or power source. Based on the above information, following questions: a) State the phenomenon observed by Kevin and his friends. b) State any two methods of inducing current in a coil. c) State Fleming's right hand rule.	4
15	a) Define genotype and phenotype. b) Mendel crossed a pea plant having yellow round seeds (YYRR) with green wrinkled seeds (yyrr). (i) Write the phenotype and the genotype for F1 generation. (ii) Give reason why all plants had the same phenotype in F1 progeny. iii) What is the scientific name of the plant which Mendel used for his experiments? Why did Mendel select that particular plant?	4