TERM-2
FINAL SAMPLE PAPER
SELF-ASSESSMENT

SCIENCE

Time Allowed: 2 Hours *Maximum Marks: 40*

General Instructions:

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

(iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

SECTION - A

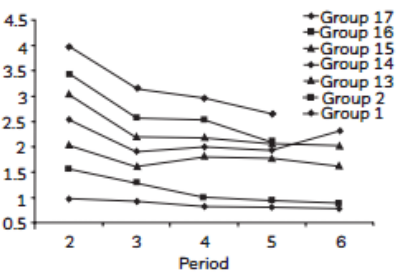
1. What would be the ratio of chromosome numbers between an egg and a zygote? How is the sperm genetically different from the egg?

OR

(A) Pollination may occur without fertilization but fertilization will not take place without pollination. Give reasons

(B) Give an example of bisexual flower. What is its female reproductive part known as? 2

2. The variation of electronegativity values for the first 20 elements is shown in the graph below that demonstrates the trend in electronegativity of elements in the periodic table. The X-axis depicts the period and the Y-axis depicts electronegativity.



(A) With the help of the given graph, identify the trend of electronegativity for elements in the period. 1

(B) Why do you think all the periods do not show the normal gradation in electronegativity? 1

3. State the role of galvanometer. Explain.

OR

What is the role of split ring in an electric motor? 2

4. (A) Observe the diagram of human male reproductive system and label the parts with the following functions:

(i) Production of sperms

(ii) Gland which provides fluid

(iii) Provides low temperature for the formation of sperms

(iv) Common passage for sperm and urine. 1

(B) Do human females also have one common passage for urine and ovum? 1

5. Why are natural ecosystems relatively balanced? If you remove all the phytoplanktons from a pond what will happen to it? 2

6. The following table shows a part of the periodic table in which the elements are arranged according to their atomic numbers. (The letters given here are not the chemical symbols of the elements):

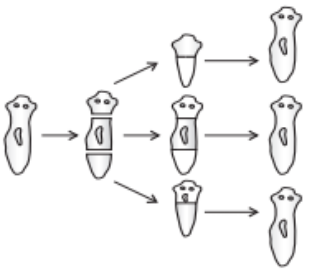
a 3	b 4	c 5	d 6	e 7	f 8	g g	h 10
i 11	j 12	k 13	l 14	m 15	n 16	o 17	p 18

Giving reasons, answer the following:

(A) Which element has a bigger atom, 'a' or 'f'? 1

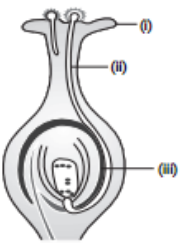
(B) Which element has a higher valency, 'k' or 'o'? 1

7. The figure shows a mode of reproduction. Based on the figure, identify the type of reproduction and mode of reproduction Explain.



OR

Identify the parts of a carpel and write the function of each part.



2

SECTION - B

8. (A) What is the commercial unit of electrical energy? Represent it in terms of joules. 1

(B) A battery of 9V is connected in series with resistors of 0.2 , 0.3 , 0.4 , 0.5 and 12 ohms respectively. How much current will flow through a 12 ohm resistor? 1

(C) Why are coils of electric toasters and electric iron made of an alloy rather than a pure metal? 1

9. Give reasons for the following:

(A) Non-metals have a tendency to form anions. 1

(B) Cs atom is larger than Li atom. 1

(C) Metals have a tendency to lose electrons. 1

OR

(A) Give reasons for the following:

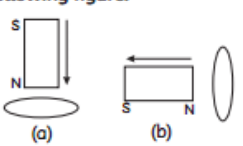
(i) Aluminium and Zinc have a tendency to form amphoteric oxides. 1

(ii) Size of an element decreases on moving along the period. 1

(B) An element 'A' belongs to the second period and group 13 of the Periodic Table. Find out the valency of A. 1

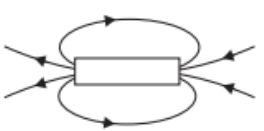
10. A non-biodegradable toxic chemical has entered into the food chain. Which type of food habit would you suggest to a man, vegetarian or non-vegetarian? Explain with the help of a food chain which you would suggest, is advantageous in another aspect. How? 3

11. (A) Give the direction of induced current in the following figure.



1

(B) Identify the poles of magnet in the figure.



1

(C) A region 'a' has magnetic field lines relatively closer than another region 'b'. Which region has a stronger magnetic field? Give a reason to support your answer. 1

(C) Express the genotype of the (i) Parents (ii) F_1 Progeny (iii) F_2 Progeny.

OR

The two versions of a trait (character) are brought in the progeny by the male and female gametes. Explain 2

12. Ashish observed the ears of all the students in the class and prepared a list of students having free and attached earlobes.

After calculations he found that 70% of students of his class have free earlobes whereas only 30% have attached ear lobes.

(A) Which ear lobes are dominant – free earlobes or attached earlobes? 1

(B) Suggest a possible rule for the inheritance of earlobe types. 1

(C) What are dominant traits? 1

13. (A) From amongst the following sets of compounds, identify which one of them is not an alkene: C_4H_8, C_4H_6, C_3H_6, C_5H_{10}. 1

(B) Identify and name the third member of the alkane family and write its formula. 1

(C) Explain with appropriate reasons as to how many isomers are possible with the third member of the alkane family. 1

OR

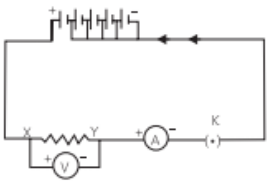
(A) Carbon forms four covalent bonds by sharing its four valence electrons with four univalent atoms e.g., hydrogen. After the formation of four bonds, carbon attains the electronic configuration of which element? 1½

(B) Why homologous series of carbon compounds are so called? Write chemical formula of two consecutive members of a homologous series and state the part of these compounds that determines their physical properties, and chemical properties. 1½

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. *Rin was a very curious child, The wanted to establish a relationship between potential difference across to conductor and current flowering through it. For this he sets up an electric circuit comprising a nichrome wire, ammeter A, voltmeter V, plug key K and 5 cells of same voltage (let's say 1.5 V each)*



First, he used one cell as sources of current in the circuit and noted the reading of ammeter and voltmeter. Then he repeated the above steps using two, three, four and five cells, and noted the reading which are given in the table alongside:

1 (ampere)	0.5	1.0	2.0	3.0	4.0
V (volts)	1.2	2.5	4.7	7.3	9.5

(A) Plot a graph between V and I and calculate the resistance of that resistor. 1

(B) Who gave the relationship between the current, I, flowing in a metallic wire and the potential difference across it terminals. Define the law used to calculate the resistance of that resistor. 1

(C) Does the phenomenon/law hold good under all conditions? Comment. 2

OR

Two identical resistors each of resistance 12 ohm are connected, (i) in series (ii) in parallel, in turn to a battery of 6 V. Calculate the ratio of power consumed in the combination of resistors in the two cases. 2

15. Study the given data and answer the questions that follow:

Parental plants cross fertilised and seeds collected	F_1 generation (First generation offspring)	F_2 generation (offspring of self pollination of F_1 generation)
Male Parents always tall	88 seeds sown and observed	88 seeds sown and observed
Female parents always dwarf	All 88 plants appeared tall	66 plants appeared tall and 22 appeared short.

(A) What is the term used for this type of cross? 1

(B) What does the data for the column marked F_1 indicate? 1