

Mock Board Exam

STD: X
Maximum marks : 40

SUBJECT: Science
16/3/2022 11:00 - 16/3/2022
22:30

ASSESSMENT: Mock Test
Time Limit : 120 Minutes

General Instructions:

- All questions are compulsory.
- The question paper has three sections and 15 questions. All questions are compulsory.
- 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.
- Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- A student has to answer a question either by typing it out, in the space provided, or writing down each answer on paper, and uploading a picture of it using the upload option.
- A student is advised to write the answers in a clear, legible handwriting using a blue/black ball point pen before uploading it.

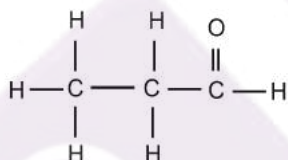
Section A

14 Marks

Internal choices have been provided as OR questions. Answer the questions accordingly.

14 Marks

- 1 Observe the structure of the following compound and answer the questions below. **2 M**



- Identify the functional group present in the above compound.
 - Write the next homologue of the above compound.
- 2 The atomic numbers of the three elements X, Y, and Z are 3, 6 and 11 respectively. **2 M**
- Which two elements belong to the same group in the modern periodic table? Justify your answer.
 - Which two elements belong to the same period in the modern periodic table? Justify your answer.
- 3 Name the following parts of the flower from the statements given below- **2 M**
- The part which contains pollen grains.
 - The part where the female gamete is formed.
 - The part where pollen grains germinate.
 - The colourful part of the flower which attracts insects.
- 4 Mention the difference between the inherited and the acquired characters in humans. **2 M**
Give one example for each.

5 Define each of the following and give two examples.

2 M

a. Autotrophs

b. Decomposers

OR

In our daily life, we use several products which affect a protective layer of a gas G present in the stratosphere and get it depleted. The depletion of this particular protective layer enhances the fall of UV rays coming from sunlight onto the earth's surface which is harmful to living beings.

2 M

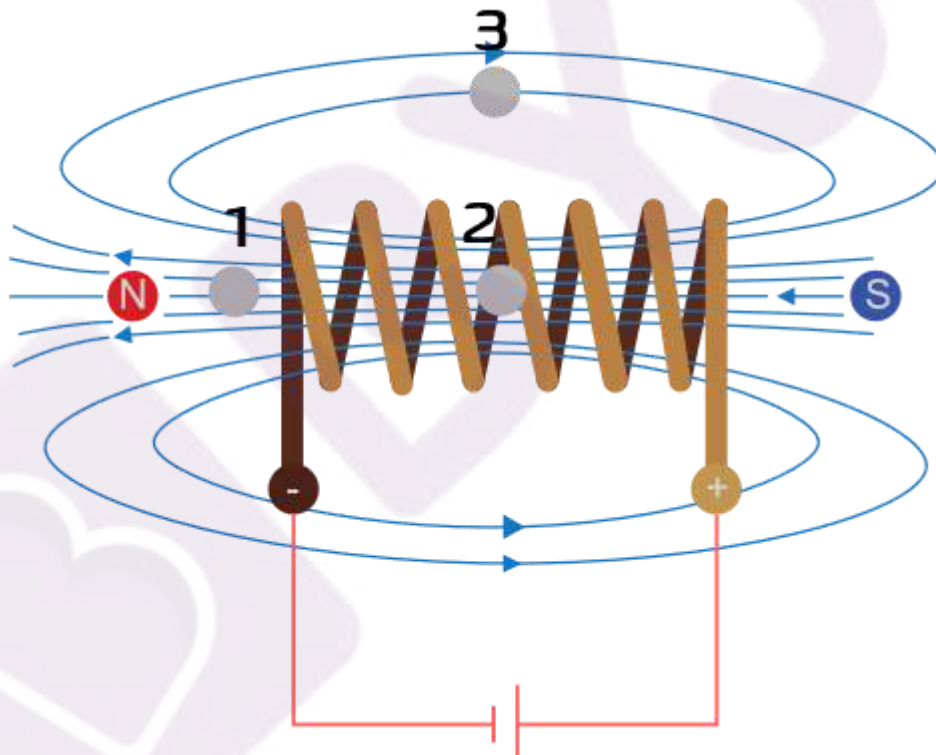
Identify the protective layer of gas G. State the cause of depletion of the gas G in the stratosphere and write the chemical equation involved in it.

6 List any three methods of contraception and explain any one in brief.

2 M

7 The given figure shows three different points in the magnetic field around a solenoid. At which of the three points will the magnetic field be the strongest? Justify your answer.

2 M



Section B

18 Marks

Internal choices have been provided as OR questions. Answer the questions accordingly.

18 Marks

- 8 Observe the following modern periodic table having elements having imaginary symbols along with their atomic numbers. 3 M

	${}_4\text{B}$																
	${}_{12}\text{D}$								${}_{14}\text{E}$					${}_{17}\text{F}$	${}_{18}\text{G}$		

- a. Write the electronic configuration of two elements that have similar valence electrons.
- b. Classify the elements B, D, E, F and G into metals, nonmetals and metalloids respectively.
- c. Among the elements D, E and F which one has the greater atomic radius? Give a reason.
- 9 a. Define allotropy. Give examples of allotropes of carbon. 3 M
- b. Why is diamond used for making cutting tools (like glass cutters) but graphite is not? And why is graphite used for making dry cell electrodes but diamond is not?

OR

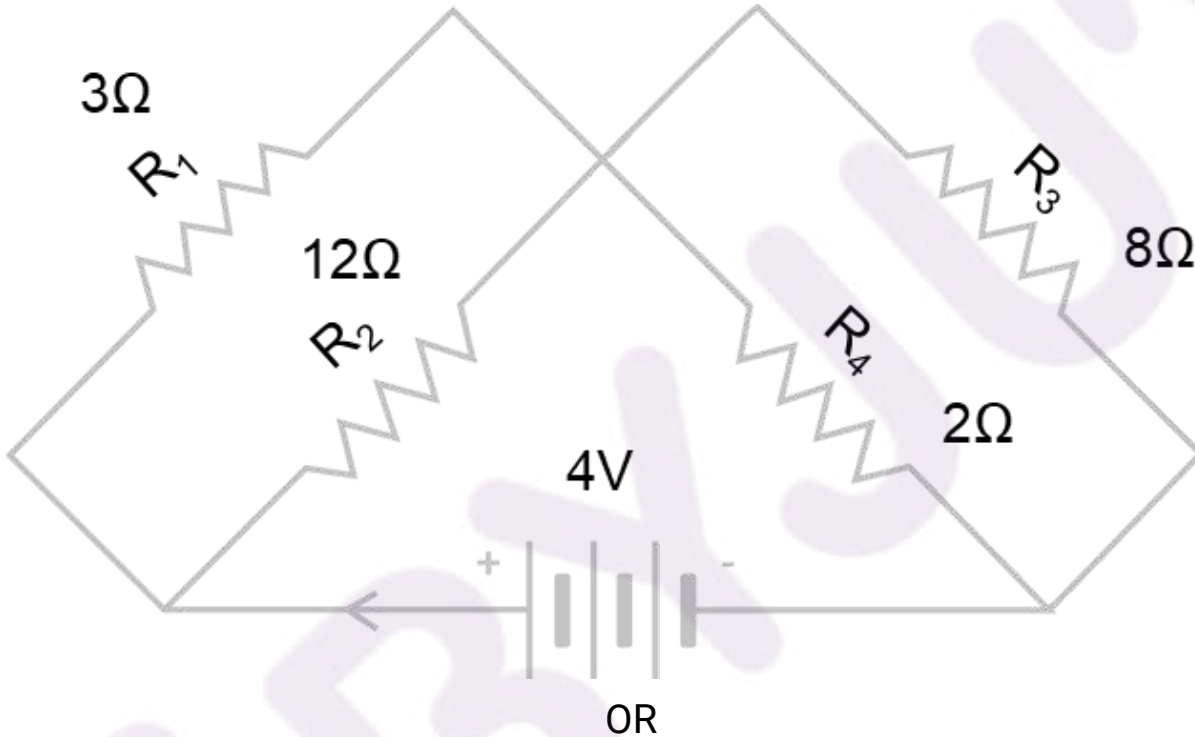
- a. Explain any two characteristics of carbon that enable it to form a large number of compounds. 3 M
- b. Differentiate between alkanes, alkenes, and alkynes.
- 10 Explain the mechanism of sex determination in humans with a neat flow chart. 3 M

OR

- With the help of a flow chart explain in brief how the sex of a newborn is genetically determined in human beings. Which of the two parents, the mother or the father, is responsible for determination of sex of a child? 3 M

- 11 a. Explain why a tungsten wire is suitable for making the filament of an incandescent bulb? **3 M**
- b. A chandelier in a hotel lobby consists of 10 bulbs. The hotel owner wants to make sure that the cost of electricity for lighting the chandelier does not exceed Rs 1000 per month (30 days). Each bulb is rated 100 W, 60 V and electricity cost is 5 rupees per unit. Calculate the maximum time for which it can be kept ON in a day.

- 12 In the given circuit, calculate the potential difference across the $8\ \Omega$ resistor. **3 M**



- Two known resistors of resistance $10\ \Omega$ and $20\ \Omega$ are connected in series with a battery of strength 60 V. Find the power across the $20\ \Omega$ resistor and energy consumed by it in 1 hour. **3 M**
- 13 Rakesh and his friends went on a picnic carrying cooked food packed in plastic bags and plastic cans. After eating the food, some friends collected the leftover food, plastic bags etc. and planned to dispose of them by burning them. Rakesh, stopping him, suggested segregating the leftover food from the plastic bags. **3 M**
- a. In your opinion, is burning plastic an eco-friendly method of waste disposal? Why?
- b. State the advantages of the method suggested by Rakesh.
- c. How is plastic harming the environment?

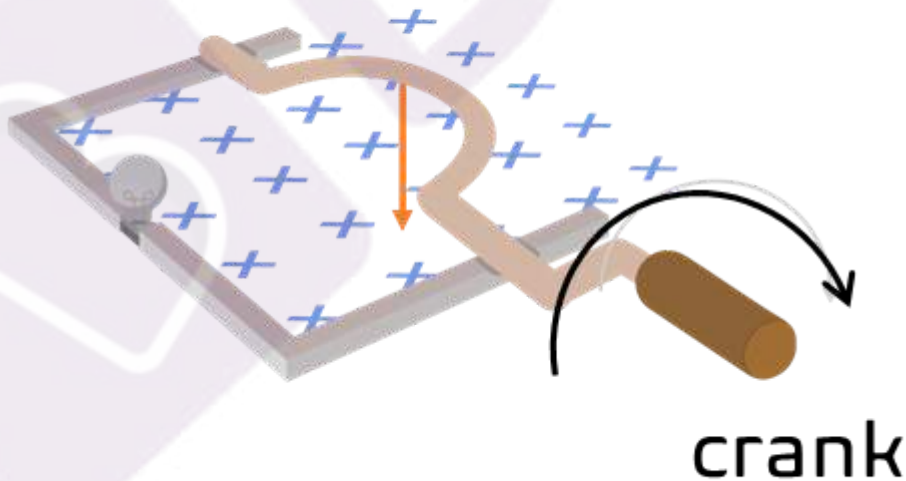
Section C

8 Marks

8 Marks

This section has 02 case-based questions (14 and 15). Questions 15 is an OR type question.

- 14 A blue colour flower plant denoted by BB is crossbred with that of white colour flower plant denoted by bb . 4 M
- State the colour of flower you would expect in their F_1 generation plants.
 - What must be the percentage of white flower plants in F_2 generation if flowers of F_1 plants are self-pollinated?
 - State the expected ratio of the genotypes BB and Bb in the F_2 progeny.
- 15 Mohan built an electric generator that can be operated by hand. The direction of the magnetic field is downwards and Mohan started to rotate the crank in clockwise direction as indicated. 4 M
- Name and state the law used here to generate electricity.
At this position, is the magnitude of current flowing minimum or maximum?
 - How many times will the bulb switch OFF during one complete rotation of the crank?
 - Will the bulb glow when instead of rotating the crank, Mohan somehow manages to alter the strength of the magnetic field. Explain.



OR

When are two resistors said to be connected in parallel combination? Derive an expression for equivalent resistance of two resistors having resistance R_1 and R_2 connected in parallel.

4 M

