Genesis Educates

"There is no element of genius Without some form of madness"

CLASS 10TH CBSE SCIENCE
MOCK TEST-1
TERM-2

T.T-2 Hr **M.M- 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.

H								He
Li	Be		B	C	N	O	F	Ne
Na	Mg		Al	Si	P	S	Cl	Ar

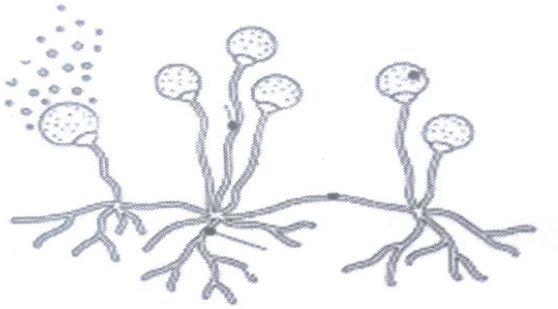
Using the above table Explain why?
(a) Li and Na are considered active metals.
(b) Atomic size of magnesium is less than sodium.

2. The position of three elements A, B and C in the periodic table are shown below. Give reason for the following:

Group VI	Group VII
–	–
–	A
–	–
B	C

(a) Element A is a non–metal.
(b) Element B has a larger atomic size than element C.

3. (a) Look at the diagram. Identify the organism and where it is found.



(b) Name the method of reproduction of this organism.

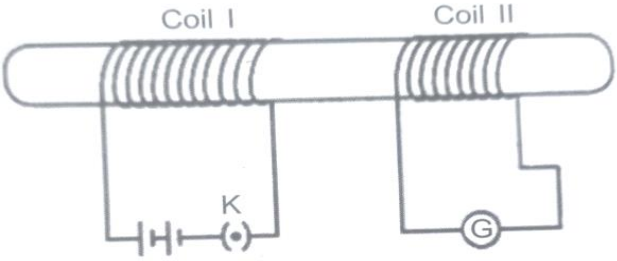
4. (a) What do you call the part which is a log, coiled tube that rests on the back side of the testicle? State the function of this part.
(b) How do oral contraceptives work?

5. A red coloured flowering plant (RR) is crossed with white colored flowering plant (rr). What should be the percentage of white flowering plants in F2 generation after F1 plants are self pollinated?
Explain with the punnet square.

OR

Rohan with blood group "A" marries to Priya with blood group "O". Their daughter Payal has the blood group "O". Which of the trait is dominant? Give reason.

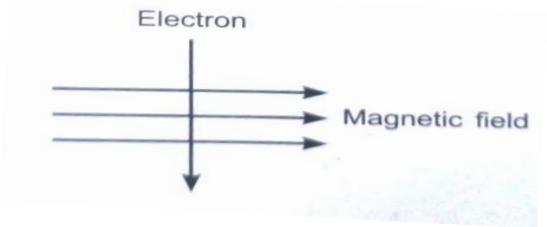
6. In the arrangement shown in figure there are two coils wound on a non-conducting cylindrical rod. Initially the key is not inserted in the circuit. Later the key is inserted and then removed shortly after.



What are the two observations that can be noted from the galvanometer reading?

OR

An electron enters a magnetic field at right angle to the field direction as shown in figure.



(a) State the rule to find the direction of force acting on the electron.
(b) What will be the direction of force acting on the electron in the above case?

7. Look at the figure. The amount of energy the grass receives is 30,000 J from the sun.

Which of the animal above will have more energy? Calculate the amount and justify the reason.

OR

Give two differences between grazing food chain and detritus food chain.

SECTION-B

8. An element 'X' belongs to third period and group 16 of the modern periodic table.
(a) Determine the number of valence electrons and the valency of 'X'
(b) Give molecular formula of the compound when X reacts with hydrogen.
(c) Name the element 'X' and state whether it is metallic or non-metallic.

9. (a) Draw the structural formula of each of the following :
(i) Ethanoic acid (ii) But-2-yne
(b) Distinguish between the saturated hydrocarbon ethane and the unsaturated ethene by drawing their structural formula

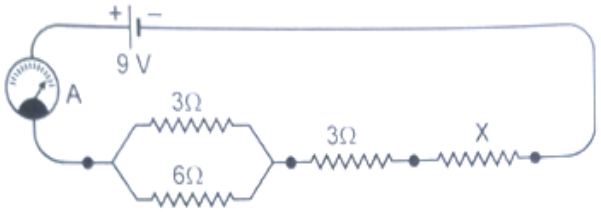
OR.

Identify the term or substance based on the descriptions given below:
(a) Ice like crystals formed on cooling an organic acid sufficiently.
(b) Hydrocarbon containing a triple bond used for welding purposes.
(c) The property by virtue of which the compound has the same molecular formula but different structural formula.

10. The sex of a baby is determined genetically at the time of conception in human beings. Explain the statement.

11. An electric heater is rated as 1200 W–200 V. Calculate:
(a) The current flowing through it.
(b) Resistance of heating elements.

12. Circuit diagram shown in figure. Show a battery of 9 V, such that the ammeter records a current of 0.2 A. Calculate the value of resistor X.

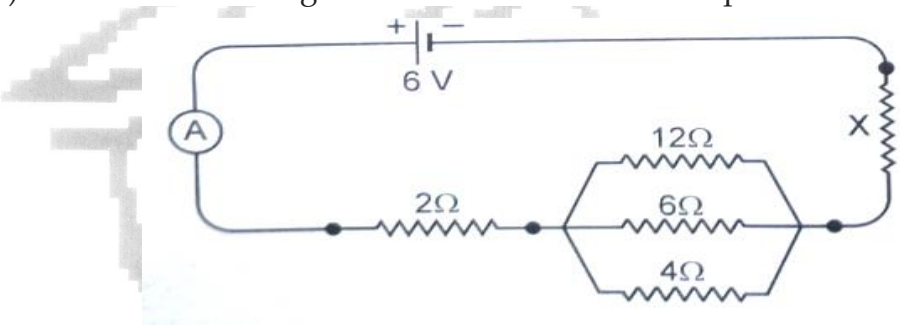


OR

Three resistors of 6 Ω, 3 Ω and 2 Ω are connected in parallel. This combination of resistors is connected in series to another resistor of 4 Ω and then to a cell of e.m.f 1.5 V. Draw the circuit diagram and calculate:

(a) The current drawn from the cell

(b) The current flowing in each of the resistor in the parallel circuit.



13. A marine ecosystem has a food chain.

$$A \rightarrow B \rightarrow C \rightarrow D$$

(a) Which name can replace A? What is its importance?

(b) Name the organism which could be D?

(c) What could be C? What type of predator is it?

SECTION -C

14. The genotype of a green stemmed tomato plants is denoted as GG and the purple stemmed tomato plants is denoted as gg.

(a) In F1 progeny, what would be the colour of the stem if these two are crossed with each other?

(b) Draw the flowchart to show the result, if F1 plants are self pollinated.

(c) What would be the ratio of Gg and gg in the progeny? Draw the flow chart to show it.

OR

What would be the percentage of purple stemmed plant?

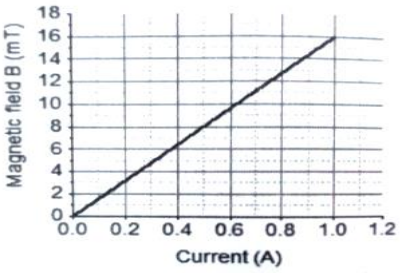
15. Read the following and answer the following questions.

A solenoid is a long helical coil of wire through which a current is run in order to create a magnetic field. The magnetic field of the solenoid is the

superposition of the fields due to the current through each coil. It is nearly uniform inside the solenoid and close to zero outside and is similar to the field of a bar magnet having a north pole at one end and a south pole at the other depending upon the direction of current flow. The magnetic filed produced in the solenoid is dependent on a few factors such as, the current in the coil, number of turns per unit length, etc.

The following graph is obtained by researcher while
doing an experiment to see the variation of the magnetic field with respect to the current in the solenoid.

The unit of magnetic field as given in the graph attached is in milli-tesla (mT) and the current is given in the ampere.



(a) What type of energy conversion is observed in a linear solenoid?

(b) What will happen if a soft iron bar is placed inside the solenoid?

(c) (i) After analysing the graph, what do you get conclusion about the variation of magnetic produced by the solenoid with the electric current in the circuit?

(ii) From the graph if current is 0.8 A, then what will be the value of magnetic?

OR

A coil of insulated wire is connected to a galvanometer, what would be seen if bar magnet with its south pole towards one face of the coil is:

(a) Moved quickly towards it

(b) Moved quickly away from it

(c) Placed near its one face?

These activities are then repeated with the north pole of the magnet. What will be the observations?