SET - A

MT EDUCARE LTD.

QUEST - II (Semi Prelim II)
(2018-19)

CBSE - X

Roll No. | | | | | | | |

Code No. 32/1

Series RLH

- Please check that this question paper contains 6 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 27 questions.
- Please write down the serial number of the question before attempting it.

SCIENCE (Theory)

Time allowed **:** 3 hours ***Maximum Marks*** **:** 80

General Instructions :

i) The question paper comprises of **five Sections A, B, C, D** and **E**. You are to attempt all the sections.

ii) All questions are **compulsory.**

iii) **Internal choice** is given in **Q.No.6, 10 , 13, 17, 21** and **Q.No. 26.**

iv) Questions numbers **1** to **2** in **Section - A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.

v) Question numbers **3** to **5** in **Section - B** are **two marks** questions. These are to be answered in about **30 words** each.

vi) Question numbers **6** to **15** in **Section - C** are **three marks** questions. These are to be answered in about **50 words** each

vii) Question numbers **16** to **21** in **Section - D** are **five marks** questions. These are to be answered in about **70 words** each

viii) Question numbers **22** to **27** in **Section - E** are are **two marks** questions based on practical skills. These are to be answered in brief.

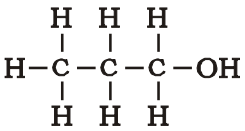
SECTION - A

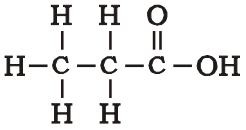
1. Why do we need an alternative source of energy? Give two reasons. **[1]**

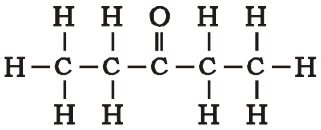
2. Will geographical isolation be a major factor in the speciation of a self pollinating plant species? Why or why not? **[1]**

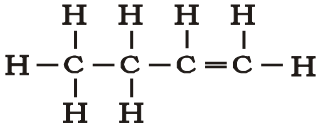
SECTION - B

3. Identify and name the functional groups present in the following compounds. **[2]**

(a) 

(b) 

(c) 

(d) 

4. (i) What produces magnetic field in the human body?
   (ii) Give two properties of magnetic field lines. **[2]**

5. (i) What is the condition needed for operating OTEC power plants ?
   (ii) What is ocean thermal energy ? **[2]**

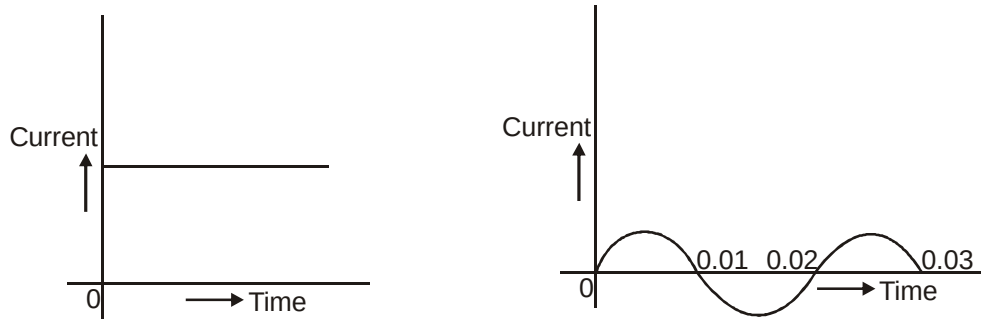
SECTION - C

6. (i) What is short-circuiting? How can the circuit be prevented from damage due to short-circuiting?

   (ii) What is the principle of an electric motor? **[3]**

OR

6. You are given following current-time graphs from two different sources: **[3]**



I II

(i) Name the type of current in two cases.
(ii) Identify any one source for each type of these currents.
(iii) What is the frequency of current in case II in India?

7. A potential difference V is applied across a conductor of length l and diameter D. How is the resistance R of the conductor affected when
(i) V is halved
(ii) l is halved and
(iii) D is doubled. Justify your answer in each case. **[3]**

8. From the following elements :
$_4$Be; $_9$F; $_{19}$K; $_{20}$Ca
(i) Select the element having one electron in the outermost shell.
(ii) Two elements of the same group.
Write the formula and mention the nature of the compound formed by the union of $_{19}$K and element X(2,8,7). **[3]**

9. Consider the following elements:
Li, Cl, Br, Na, K, I
(i) Arrange the elements according to the groups to which they belong in the Periodic Table.
(ii) What are the common properties on the basis of which the elements have been grouped together? **[3]**

10. Illustrate the following with the help of suitable diagram :
Spore formation in Rhizopus **[3]**

OR

10. Why does menstruation occur ? **[3]**

11. What factors could lead to the rise of a new species? **[3]**

12. (i) Distinguish between nuclear fusion and nuclear fission. **[3]**
(ii) What are 'hot spots'?

13. Write the molecular formula of the following compounds and draw their electron-dot structures :
(i) ethane (ii) ethene (iii) ethyne **[3]**

OR

13. Explain the given reactions with examples:
(a) Combustion reaction
(b) Oxidation reaction
(c) Substitution reaction **[3]**

14. Dams are constructed on a river for a multipurpose use. Give its disadvantages. **[3]**

15. How do Mendel's experiments show that traits may be dominant or recessive? [**3]**

SECTION - D

16. Explain along with the diagram, the construction and working of an A.C. electric generator. **[5]**

17. (a) How does the atomic radius change as you go
(i) from left to right in a period?
(ii) down a group in the periodic table? **[2]**

(b) Two elements X and Y have atomic numbers 12 and 16 respectively. Write the electronic configuration for these elements. To which period of the Modern Periodic Table do theses two elements belong ? What type of bond will be formed between them and why ? **[3]**

OR

17. An element placed in 2nd Group and 3rd Period of the Periodic Table, burns in presence of oxygen to form a basic oxide.
(a) Identify the element.
(b) Write the electronic configuration.
(c) Write a balanced equation when it burns in the presence of air.
(d) Write a balanced equation when this oxide is dissolved in water.
(e) Draw the electron dot structure for the formation of this oxide. **[5]**

18. How is the sex of the child determined in human beings? **[5]**

19. An electric bulb rated 220 V, 60 W glows when connected with 220 V mains.
    (a) Find the resistance of the filament of the bulb.
    (b) Another identical bulb is connected in series with the first one the system is connected across the 220 V mains. Draw a diagram to show the arrangement and find
        (i) The rate of conversion of energy in each bulb and
        (ii) Total power consumed.
    (c) If two bulbs are connected in parallel, what will be the total power then consumed ? **[5]**

20. What happens when
    (i) ethanol burns in air. **[1]**
    (ii) ethanol reacts with sodium metal. **[2]**
    (iii) ethanol is heated with ethanoic acid in the presence of a few drops of concentrated sulphuric acid? **[2]**

21. Describe the process of fertilisation in a flower with the help of diagram. **[5]**

OR

21. (a) Describe the functions of the following in human female reproductive system:
    (i) Ovary (ii) Oviduct (iii) Uterus **[3]**
    (b) How does the embryo get nourishment inside the mother's body? Explain in brief. **[2]**

SECTION - E

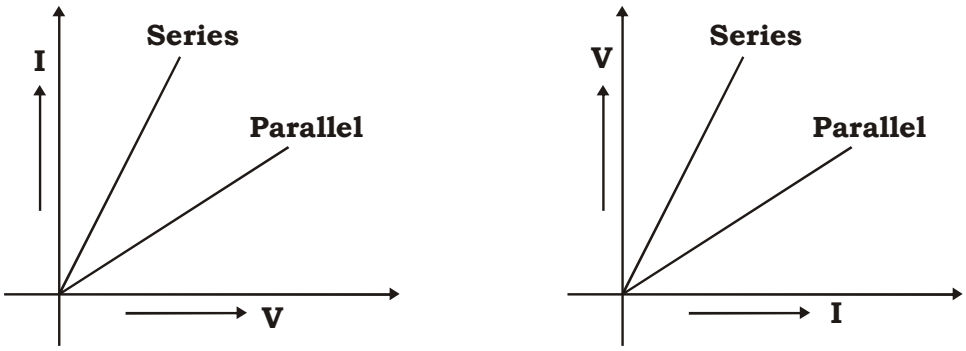
22. An element 'X' has mass number 35 and number of neutrons 18. Write atomic number and electronic configuration of 'X'. Also write group number, period number and valency of 'X'. **[2]**

23. A cyclic compound 'X' has molecular formula C_6H_6. It is an unsaturated compound and burns with sooty flame. Identify 'X' and write its structural formula. **[2]**

24. Humans have carried out artificial selection for various features of cabbage and produced different vegetables. List the selected feature for the following produced vegetables:
    (i) Broccoli (ii) Cauliflower (iii) Kohlrabi (iv) Kale **[2]**

25. "Industrialization has adversely deteriorated the environment." Give four reasons in support of this answer. **[2]**

26. Two Student perform the experiment on series and parallel combinations of two given resistors R_1 and R_2 and plot the following V–I graphs.



(i) **(ii)**

Which of the graphs is (are) correctly labelled in terms of the words 'Series and parallel'? justify your answer. **[2]**

OR

26. A piece of wire of resistance R is cut into five equal parts. These parts are then connected in Parallel. If the equivalent resistance of this combination is R', then what is the ratio R/R' equal to ? **[2]**

27. A current carrying wire is placed in east-west direction with current flowing towards west. What will be the direction of the force experienced by it due to earth's magnetic field. How will the force be affected on reversing the direction of current through the wire. **[2]**

All the Best