

SET - B

MT EDUCARE LTD.

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

CBSE - X

Roll No.

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Code No. **32/1**

Series RLH

- Please check that this question paper contains 5 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 :

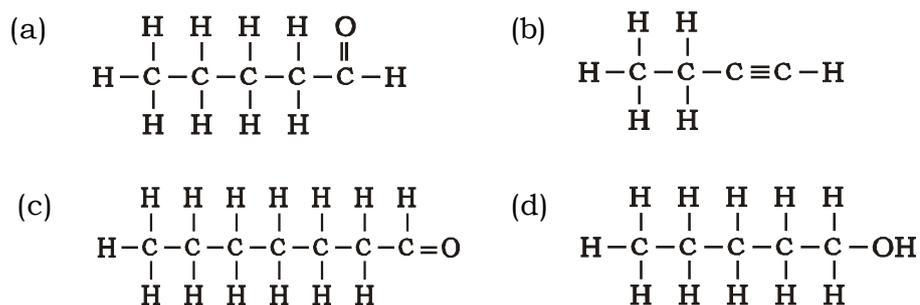
- i) The question paper comprises of **five Sections A, B, C, D and E**. You are to attempt all the sections.
- ii) All questions are **compulsory**.
- iii) **Internal choice** is given in **Q.No.6, 10, 13, 17, 21** and **Q.No. 26**.
- iv) Questions numbers **1 to 2** in **Section - A** are **one mark** 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 **two marks** questions based on practical skills. These are to be answered in brief.

SECTION - A

1. What is water harvesting? [1]
2. What is evolution ? [1]

SECTION - B

3. Write the name of the following compounds. [2]



4. Draw the magnetic field lines due to a current - carrying solenoid. [2]
5. What are the limitations of harnessing
 (i) Tidal energy
 (ii) Wave energy [2]

SECTION - C

6. Show how you would connect three resistors, each of resistance 6Ω , so that the combination has a resistance of (i) 9Ω , (ii) 4Ω . [3]

OR

6. A copper wire has diameter 0.5mm and resistivity of $1.6 \times 10^{-8}\Omega\text{m}$. What will be the length of this wire to make its resistance 10Ω ? How much does the resistance change if the diameter is doubled ? [3]
7. A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is :
 (i) pushed into the coil?
 (ii) held stationary inside the coil?
 (iii) withdrawn from inside the coil? [3]

8. Given below are some elements of the Modern Periodic Table. Atomic number of the element is given in the parentheses :
A(4), B(9), C(14), D(19), E(20)
- (a) Select the element that has one electron in the outermost shell. Also write the electronic configuration of this element.
 - (b) Which two elements amongst these belong to the same group? Give reason for your answer.
 - (c) Which two elements amongst these belong to the same period ? Which one of the two has bigger atomic radius ? **[3]**
9. Calcium is an element with atomic number 20. Stating reason answer each of the following questions :
- (i) Is calcium a metal or non-metal?
 - (ii) Will its atomic radius be larger or smaller than that of potassium with atomic number 19?
 - (iii) Write the formula of its oxide. **[3]**
10. Differentiate between asexual and sexual reproduction. **[3]**

OR

10. State the functions of the human male and female sex hormones. **[3]**
11. The modern human beings have originated in Africa. Which evidence suggests this fact ? **[3]**
12. (i) Hydrogen has been used as a rocket fuel. Would you consider it a cleaner fuel than CNG ? Why or why not ? **[3]**
(ii) Give the characteristics of an ideal fuel.
13. Give an example each of (i) open chain (ii) branched chain and (iii) ring compounds. **[3]**

OR

13. Write physical properties of ethanol. **[3]**
14. List disadvantages of burning fossil fuels. **[3]**
15. Explain with an example, how the genes control the characteristics? **[3]**

SECTION - D

16. Along with the diagram, explain the construction and working of an electric motor. **[5]**

17. How could the Modern Periodic Table remove various anomalies of Mendelèev's Period Table ? [5]

OR

17. (a) How would the tendency to lose electrons change as you go
(i) from left to right across a period ?
(ii) down a group ? [2]
- (b) An element X (2, 8, 2) combines separately with $(\text{NO}_3)^-$, $(\text{SO}_4)^{2-}$ and $(\text{PO}_4)^{3-}$ radicals. Write the formulae of the three compounds so formed. To which group of the periodic table does the element 'X' belong? Will it form covalent or ionic compound ? Why ? [3]
18. Explain or list some important deductions of Darwin's theory of evolution. [5]
19. Two room heaters are marked 220 V, 500 W and 220 V, 800 W respectively. If the heaters are connected in parallel to 220 V mains supply, calculate:
(i) the current drawn by each heater.
(ii) the resistance of each heater.
(iii) total electric energy consumed in commercial units if they operate simultaneously for 2 hours. [5]
20. **Give reason.**
- (i) (a) Air holes of a gas burner have to be adjusted when the heated vessels get blackened by the flame.
(b) Use of synthetic detergents causes pollution of water. [3]
- (ii) (a) Why do covalent compounds have low melting points and boiling points ?
(b) How are carboxylic acids different from mineral acids from ionisation point of view? [2]
21. What are the different methods of contraception ? [5]

OR

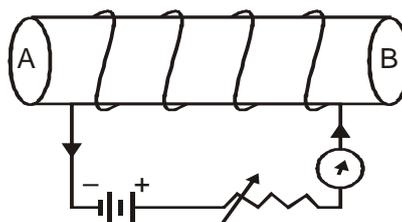
21. Describe the functions of the following in human male reproductive system:
- | | | |
|--------------------|-----------------------|-------------|
| (i) Testis | (ii) Epididymis | |
| (iii) Vas deferens | (iv) Seminal vesicles | (v) Urethra |
- [5]

SECTION - E

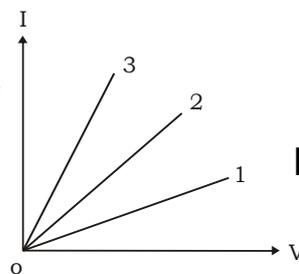
22. Three elements A, B and C have 3, 4 and 2 electrons respectively in their outermost shell. Give the group number to which they belong in the Modern Periodic Table. also, give their valencies. **[2]**
23. An organic compound 'A' of molecular formula C_2H_6O on oxidation with dilute alkaline $KMnO_4$ solution gives an acid 'B' with the same number of carbon atoms. Compound 'A' is often used for sterilisation of skin by doctors.
 (i) Name the compounds 'A' and 'B'
 (ii) Write the chemical equation involved in the formation of 'B' from 'A'. **[2]**
24. List the various methods to estimate the age of fossils. **[2]**
25. How did 'Chipko Andolan' ultimately benefit the local people? Explain briefly. **[2]**
26. 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]**

OR

26. Diagram below shows a circuit containing a coil wound over a long and thin hollow cardboard tube. Copy the diagram:
 (i) Draw the magnetic field lines of force inside the coil and also show their direction.
 (ii) Mention two methods to increase the strength of the magnetic field inside the coil. **[2]**



27. The I-V graphs of two resistors, and their series combination are shown below. Which one of these graphs represents the series combination of the other two? Give reasons for your answer. **[2]**



All the Best 👍