

**MT EDUCARE LTD.****QUEST - II (Semi Prelim II)**  
**(2017-18)****CBSE - X**Roll No. 

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Code No. **32/1****Series RLH**

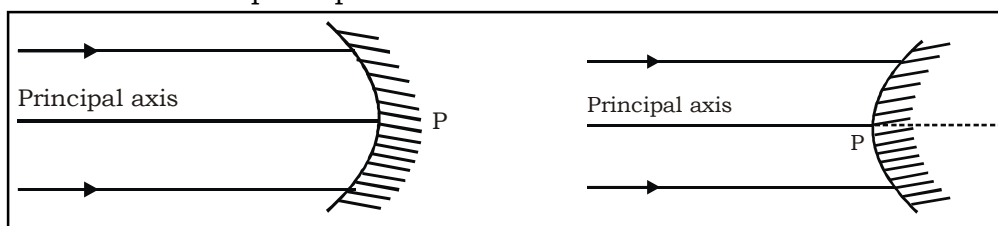
- Please check that this question paper contains 7 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 27 questions.
- Please write down the serial number of the question before attempting it.

**SCIENCE (Theory)****Time allowed** : 3 hours**Maximum Marks** : 80**General Instructions :**

- i) The question paper comprises of **two Sections A and B**. 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) **All** questions of **Section - A** and **Section - B** are to be attempted separately.
- v) Questions numbers **1 to 2** in **Section - A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
- vi) Question numbers **3 to 5** in **Section - A** are **two marks** questions. These are to be answered in about **30 words** each.
- vii) Question numbers **6 to 15** in **Section - A** are **three marks** questions. These are to be answered in about **50 words** each
- viii) Question numbers **16 to 21** in **Section - A** are **five marks** questions. These are to be answered in about **70 words** each
- ix) Question numbers **22 to 27** in **Section - B** are are **two marks** questions based on practical skills. These are to be answered in about **30 words** each.

**SECTION - A**

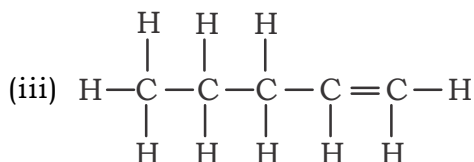
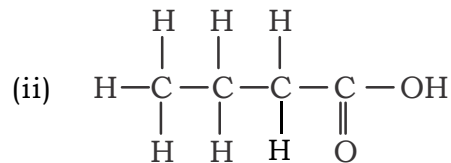
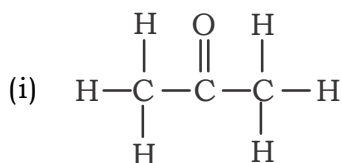
1. Name two industries based on forest produce. [1]
2. What are traits ? [1]
3. Give Reasons for the following :
  - (i) Why is pure ethanoic acid known as glacial acetic acid ?
  - (ii) Why is ethanol used as antifreeze ?[2]
4. (a) Two lenses have power of (i) +20 D, (ii) -4 D.  
What is the nature of each lens? [1]
  - (b) An object is kept at a distance of 100cm for lens of power -4 D.  
Calculate image distance. [1]
5. A short sighted person cannot see clearly beyond 2m. Calculate the power of lens required to correct his vision. [2]
6. A parallel beam of light is incident on a concave mirror and a convex mirror as shown in figure below :
  - (i) Redraw the diagram and show the path of rays after reflection from the mirror.
  - (ii) Name the points where the reflected rays meet or appear to meet on the principal axis. [3]



**OR**

6. (a) If the image formed by a mirror for all positions of the object placed in front of it is always erect and diminished, what type of mirror is it?
  - (b) Draw a ray diagram to justify your answer.
  - (c) Where and why do we generally use this type of mirror? [3]
7. A person is able to see objects clearly only when they are lying at distances between 50 cm and 300 cm from his eye.
  - (a) What kind of defect of vision is he suffering from ?
  - (b) What kind of lenses will he require to increase his range of vision from 25 cm to infinity? Explain. [3]

8. Write the name of the following compounds : [3]



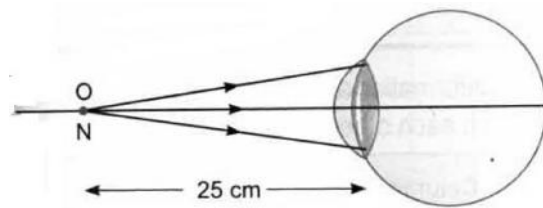
9. Based on the valency of elements state the formula for the following giving justification for each : [3]
- Oxides of 1st group elements,
  - Halides of the elements of group 13, and
  - Compounds formed when an element of group 2 combines with elements of group 16.
10. Illustrate the following with the help of suitable diagrams : [3]  
Spore formation in Rhizopus

**OR**

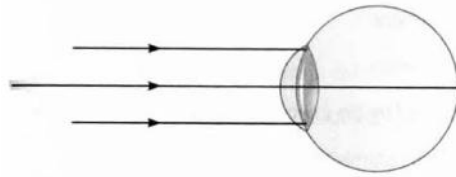
10. How is the process of pollination different from fertilisation ? [3]
11. Give examples of various kinds of fossils. [3]
12. (a) Give below are refractive indices of a few material media
- |                   |      |
|-------------------|------|
| Ice               | 1.31 |
| Dense flint glass | 1.65 |
| Crown glass       | 1.52 |
| Rock salt         | 1.54 |
- Arrange the media in the ascending order of optical density.
- (b) A ray of light is incident from air to a medium at an angle of  $45^\circ$ . Its angle of refraction is  $30^\circ$ . Find the refractive index of the medium with respect to air ( $\sin 30 = \frac{1}{2}$ ;  $\sin 45 = \frac{1}{\sqrt{2}}$ ). [3]
13. Draw the structure of benzene and cyclohexane. Which one is a saturated hydrocarbon ? [3]

**OR**

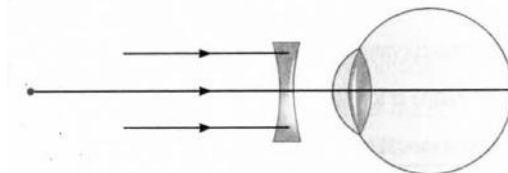
13. What are metalloids? How many electrons can be present in the valence shell of their atoms? What type of oxides are formed by these elements ? [3]
14. (i) Why is reusing even better than recycling? List any two reasons.  
 (ii) Give any three examples of human activities leading to destruction of forests. [3]
15. Explain the terms homologous and analogous organs with examples. [3]
16. Complete the following diagrams to show the image formation. [5]  
 (i) Normal eye, object 25cm from the eye lens



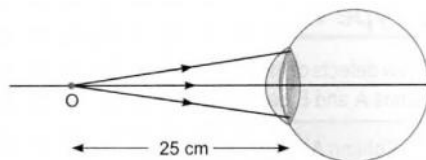
- (ii) Myopic eye, object at infinity



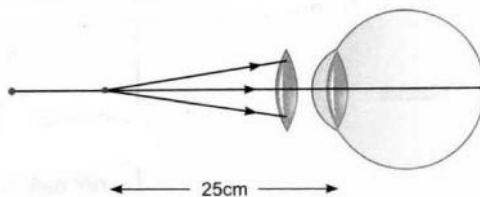
- (iii) Myopic eye



- (iv) Hypermetropic eye, object at 25cm from the eye lens



- (v) Hypermetropic eye



[5]

17. (A) What are esters? Define esterification. Write a chemical equation to illustrate it. [3]
- (B) What is vinegar? State its one use. [2]

OR

17. (A) Nitrogen (atomic number 7) and phosphorus (atomic number 15) belong to group 15 of the Periodic Table. Write the electronic configuration of these two elements. Which of these will be more electronegative? Why? [2]
- (B) Consider two elements 'A' (Atomic number 17) and 'B' (Atomic number 19):
- (i) Write the position of these elements in the modern periodic table giving justification.
- (ii) Write the formula of the compound formed when 'A' combines with 'B'. [3]

18. Dams are constructed on a river for a multipurpose use. Give its advantages and disadvantages. [5]

19. (a) From the given table, showing object distance and focal length of three concave mirrors, answer the following questions. [5]

Sr. No.	Object distance (cm)	Focal length (cm)
1	30	20
2	10	15
3.	20	10

- (i) Out of three, in which part, the mirror will form the image having same size as an object?
- (ii) Which mirror can be used as a make-up mirror?
- (iii) Draw the ray diagram for Sr. No.(2)
- (b) No matter how far you stand from a mirror, your image appears erect and same size. Identify the type of mirror.

20. The position of eight elements in the Modern Periodic Table is given below where atomic numbers of elements are given in the parenthesis. [5]

Period No.		
2	Li (3)	Be (4)
3	Na (11)	Mg (12)
4	K (19)	Ca (20)
5	Rb (37)	Sr (38)

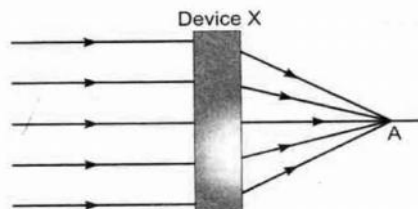
- (i) Write the electronic configuration of Ca.  
 (ii) Predict the number of valence electrons in Rb.  
 (iii) What is the number of shells in Sr ?  
 (iv) Predict whether K is a metal or a non-metal.  
 (v) Which one of these elements has the largest atom in size?
21. Explain or list some important deductions of Darwin's theory of evolution. [5]

**OR**

21. What are the different methods of contraception ? [3]

**SECTION - B**

22. Explain the cleansing action of soaps. [3]
23. Give the name and structural formula of the simplest ketone. Given its IUPAC name. [2]
24. Guinea pig having black colour when crossed with guinea pig having same colour produced 80 offsprings out of which 60 were black and 20 were white. Now, find out :  
 (i) Which trait is dominant and which trait is recessive?  
 (ii) What is the cross called as and what is its phenotypic ratio? [2]
25. Give two advantages of classifying energy sources as renewable and non-renewable. [2]
26. Study the diagram given below and answer the following questions.



- (i) Name the phenomenon responsible for the change in the path of rays.
- (ii) Identify the device X.
- (iii) What is point A called?
- (iv) Which physical quantity does the reciprocal of the distance between the device and point A denote? [2]

**OR**

- 26. (A) Is it possible that a convergent lens in one medium becomes divergent, when placed in another medium?
  - (B) Refractive index of diamond with respect to glass is 1.6 and absolute refractive index of glass is 1.5. Find out the absolute refractive index of diamond. [2]
27. If you are given two colours : yellow and red
- (a) Which colour has more speed in glass?
  - (b) Which colour has more speed in vacuum? [2]

*All the Best* 👍