# SAMPLE QUESTION PAPER
# CLASS X - SCIENCE (Theory)

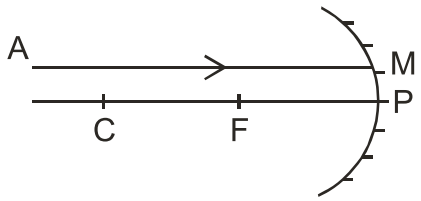
**Time:2½ Hours** **Max. Marks: 60**

**General Instructions**

1. The question paper comprises of two sections A and B. You have to attempt both the sections.
2. All questions are compulsory.
3. There is no overall choice. However, internal choice has been provided in all the three questions of five marks category. Only one option in such questions is to be attempted.
4. All questions of section A and all questions of section B to be attempted separately.
5. Questions 1 to 6 in section A and 19 to 21 in section B are very short answer questions. These carry one mark each.
6. Questions 7 to 12 in section A and 22 to 24 in section B are short answer type questions and carry two marks each.
7. Questions 13 to 16 in section A and 25 to 26 in section B are also short answer type questions and carry three marks each.
8. Questions 17 and 18 in section A and question 27 in section B are long answer type questions and carry five marks each.

**Section A**

1. A ray of light AM is incident on a spherical mirror as shown in the diagram.




Redraw the diagram on the answer sheet and show the path of reflected ray.

1. A metal M belongs to $13^{th}$ group in the modern periodic table. Write the valency of the metal.
2. The ciliary muscles of a normal eye are in their (i) most relaxed (ii) most contracted state. In which of the two cases is the focal length of the eye-lens more?
3. Tap water conducts electricity whereas distilled water does not. Why?
4. An electric geyser has the ratings 2000W, 220V marked on it. What should be the minimum rating, in whole number of a fuse wire, that may be required for safe use with this geyser?
5. Kerosene burns with a sooty flame. Is it a saturated or an un saturated compound?
6. Two metallic wires A and B of the same material are connected in parallel. Wire A has length $l$ and radius r, wire B has a length $2l$ and radius 2r. Calculate the ratio of the equivalent resistance in parallel combination and the resistance of wire A.
7. A student performs an experiment to study the magnetic effect of current around a current

carrying straight conductor. He reports that

(i) for a given battery, the degree of deflection of a N – pole decreases when the compass is kept at a point farther away from the conductor.

(ii) the direction of deflection of the north pole of a compass needle kept at a given point near the conductor remains unaffected even when the terminals of the same battery sending current in the wire are inter changed.

Which of the above observations of the student appears to be wrong and why?

8. A housewife wanted her house to be whitewashed. She bought 10kg of quick lime from the market and added it to 30 litres of water. On adding lime to water she noticed that the water appeared to be boiling even when it was not being heated. Give reason for her observation. Write the corresponding chemical equation and name the product formed.

9. Write the electron- dot structure for sodium and chlorine atoms. How do these form a chemical bond? Name the type of bond so formed. Why does a compound so formed have high melting point?

10. Why are many thermal power plants set up near coal or oil fields?

11. How is charcoal obtained from wood? Write two advantages of using charcoal as a fuel over wood?

12. Two carbon compounds A and B have the molecular formula $C_3H_8$ and $C_3H_6$ respectively. Which one of the two is most likely to show addition reaction? Justify your answer. Explain with the help of a chemical equation, how an addition reaction is useful in vegetable ghee industry.

13. A beam of white light falling on a glass prism gets split up into seven colours marked 1 to 7 as shown in the diagram.

A student makes the following statements about the spectrum observed on the screen.

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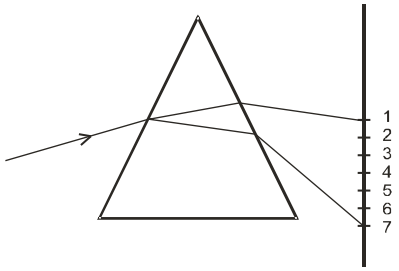



(a) The colours at positions marked 3 and 5 are similar to the colour of the sky and the colour of gold metal respectively.

Is the above statement made by the student correct or incorrect? Justify.

(b) Which two positions correspond closely to the colour of

(i) a brinjal

(ii) ‘danger’ or stop signal lights?

15. Baking soda is used in small amount in making bread and cake. It helps to make these soft and spongy. An aqueous solution of baking soda turns red litmus blue.

It is also used in soda acid fire extinguisher.

Use this information to answer the following questions:-

(i) How does Baking Soda help to make cakes and bread soft and spongy?

(ii) How does it help in extinguishing fire?

(iii) Is the pH value of baking soda solution lower than or higher than 7 ?

16. (i) A concave mirror produces three times enlarged image of an object placed at 10 cm in front of it. Calculate the focal length of the mirror.

(ii) Show the formation of the image with the help of a ray diagram when the object is placed 6 cm away from the pole of the mirror.

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

(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 these two elements belong? What type of bond will be formed between them and why?

Or

(a) How would the tendency to lose electrons change as you go

(i) from left to right across a period

(ii) down a group

(b) An element X (2, 8,2) combines separately with $(NO_3)^{1-}$ , $(SO_4)^{2-}$ , and $(PO_4)^{3-}$ 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?

18. (a) The electric power consumed by a device may be calculated by using either of the two expressions $P = I^2R$ or $P = \frac{V^2}{R}$ . The first expression indicates that it is

directly proportional to R whereas the second expression indicates inverse proportionality. How can the seemingly different dependence of P on R in these expressions be explained?

(b) (i) A 100 W electric bulb is connected to 220 V mains power supply. Calculate the strength of the electric current passing through the bulb. (ii) If the same bulb is taken to U.S.A where the main power supply is 110 V, how much electric current will pass through the bulb when connected to mains?

OR

Explain the meaning of the word 'electromagnetic' and 'induction' in the termelectromagnetic induction. On what factors does the value of induced current produced in a circuit depend? Name and state the rule used for determination of direction of induced current. State one practical application of this phenomenon in every day life.

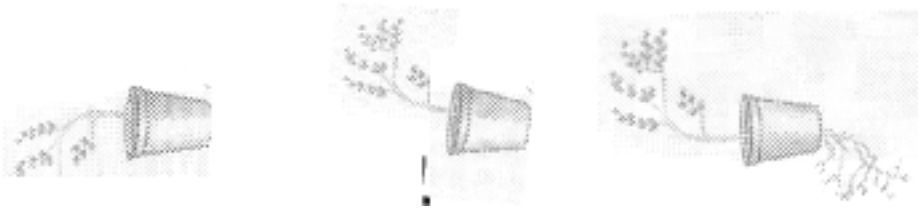
## SECTION – B

Q.19 What will be the impact on ecosystems if Bacteria , fungi/microorganism are remove from the environment ? 1

Q.20 Why is sexual reproduction considered to be superior to asexual reproduction is terms of evolution? 1

Q.21 Name one organ where growth hormone is synthesized in case of plants and man. 1

Q.22 The given experimental set up establishes the response of different plant parts towards gravity.



a) Give the scientific term used for such response/movement. 1

b) How is shoot response different from root response/movement. 1

Q.23 Name the parts of brain which control following activities.

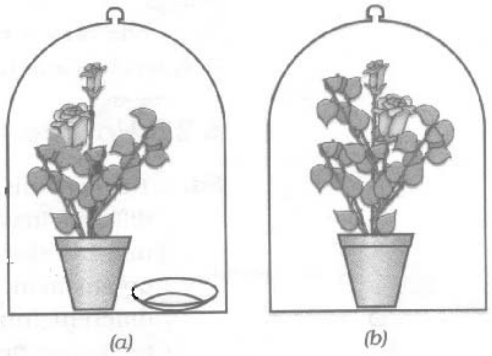
Blood Pressure

Riding Bicycle

Hearing

Centre associated with hunger ½ x 4 = 2

Q.24 Given below is the experimental set up to establish that one of the atmospheric gases is essential for photosynthesis is plants.

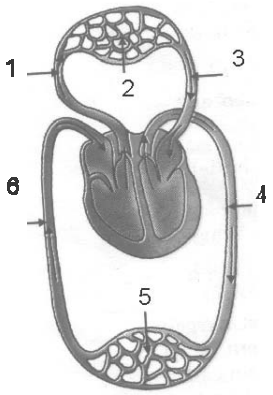



a. Name the atmospheric gas which is essential for photosynthesis . 2

b. What is kept is watch glass in figure 'a' and why?

Q.25 Mrs. Joshi is a house wife and wants to contribute for conservation of natural resources. List any six activities that she can do on her own. 3

Q.26




(i) Label any 4 parts in the above diagram.

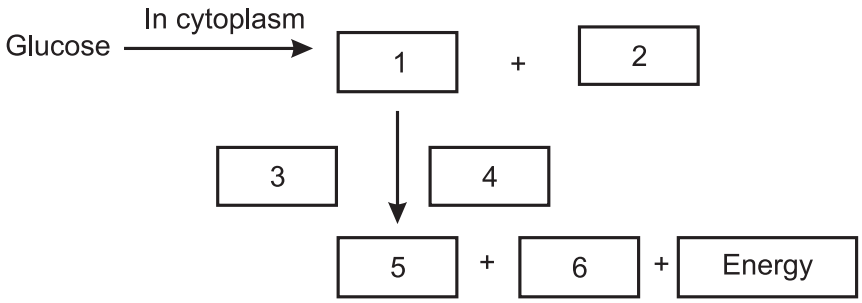
(ii) What are the two functions represented in this diagram?

3

Q.27 Plants absorb water from the soil. How does this water reach the tree tops? Explain in detail.

OR

Complete the glucose breakdown pathway in case of aerobic respiration by filling the blanks.




6×½ =3

a) Name the molecule in the cell which stores the energy produced at the end of the path way. ½

b) Why do we get cramps during sudden muscular activity? ½+½