PRERNA EDUCATION
SCIENCE CLASS 10 SAMPLE PAPER

Maximum Time: 3 HR **M.M.80**

General Instructions:
(i) The question paper comprises two 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 sections B, C, D and E.
(iv) Question numbers 1 and 2 in Section-A are 1 mark questions. These are to be answered in one word or in one sentence.
(v) Question numbers 3 to 6 in Section-B are 2 marks questions. These are to be answered in 30 words each.
(vi)Question numbers 7 to 15 in Section-C are 3 marks questions. These are to be answered in about 50 words each.
(vii) Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.
(viii) Question numbers 22 to 27 in Section-E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

Section - 'A'

1. Define feedback mechanism of hormones. 1 mark

2. State modern periodic law of classification of elements. 1 mark

Section - 'B'

3. Write three differences between metals and non-metals on the basis of chemical properties. 2 marks

4. Mention the kind of lens that can form: 2 marks
(i) Real, inverted and diminished image.
(ii) Real, inverted and magnified image.
(iii) Virtual, erect and diminished image.
(iv) Virtual, erect and magnified image.

5. List two reasons to show that the existence of decomposers is essential in an ecosystem. 2 marks

6. What is the difference between F 1generation and F2 generation? 2 marks

OR

Explain the feedback mechanism to regulate the action of the hormones with the help of one suitable example.

Section - 'C'

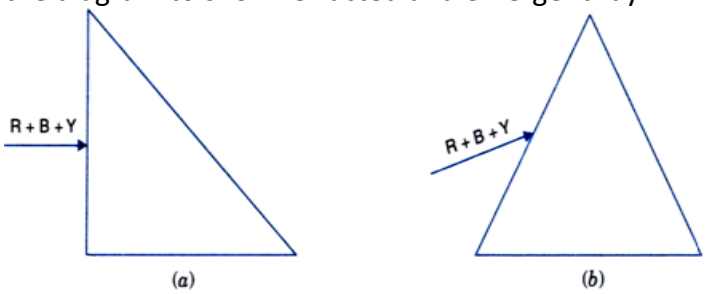
7. (i) Write Joule's law of heating. 3marks
(ii) Two lamps one rated 100W, 200V and the other 60W, 220V are connected in parallel to electric main supply. Find the current drawn by two bulbs from the line, if the supply voltage in 220V.

OR

Derive an expression for electric energy consumed in a device in terms of V, I and t, where V is the potential difference applied to it, I is the current drawn by it and t is the time for which the current flows?

8. List three factors which can cause overloading of domestic electric circuits. 3marks

9. (i) Define dispersion of light. How is scattering of light different from dispersion? Give one example of natural phenomenon based on each of these. 3marks
(ii) A beam of light consisting of red, blue and yellow is incident on the prism as shown below. Complete the diagram to show refracted and emergent ray



10. An NGO is opposing the construction of a dam on a river flowing through a number of villages and forest for the purpose of generating electricity while the Government was insisting that it would bring a number of benefits for the villagers once the project gets completed. List three problems which arise due to construction of big dams. Suggest a solution of these problems. 3marks

11. "Our food grains such as wheat and rice, the vegetables and fruits and even meat are found to contain varying amounts of pesticides residues". State the reason to explain how and why it happens? 3marks

OR

Suggest three ways to maintain a balance between environment and development to survive.

12. (i) With the help of a diagram, show asexual reproduction in Rhizopus. 3marks
(ii) How this method is advantageous for Rhizopus?

13. (i) "Stomata remain closed in desert plants during day time". How do they do photosynthesis? 3marks
(ii) Why do ventricle have thicker muscular walls than atria?
(iii) What are peristaltic movements?

14. List three techniques that have been developed to prevent pregnancy. Which one of these techniques is not meant for males? How does the use of these techniques have a direct impact on the health and prosperity of a family. 3marks

15. Zinc is the metal which lies in the middle of the activity series. This metal is extracted from its sulphide ore. Outline the steps involved in the process of extraction of zinc metal with the help of balanced chemical equation for each step. 3marks

OR

Some articles made of silver, copper and iron get coloured coating over them when they are exposed to air. Identify the colour and chemical name of the substance of coating in each case.

Section - 'D'

16. (i) State the law of refraction of light. Explain the term absolute refractive index of a medium and write an expression to relate it with the speed of light in vacuum. 5marks

(ii) The absolute refractive index of two medium 'A' and 'B' are 2.0 and 1.5 respectively. If the speed of light in medium 'B' is 2 $X10^8$ m/s, calculate the speed of light in:

(a) medium 'A'

(ii) vacuum

17. (i) Write the functions of the following parts in human female reproductive system: 5marks

(a) Oviduct

(b) Uterus

(c) Ovary

(ii) Describe the structure and function of placenta.

OR

(i) Define the terms pollination and fertilization.

(ii) Distinguish between self pollination and cross pollination.

18. Define a chemical reaction. State four observations which help us to determine that a chemical reaction has taken place. Write one example of each observation with a balanced chemical equation. 5marks

19. (i) Name an instrument that measures electric current in a circuit. Define unit of electric current. 5marks

(ii) What does the following symbols mean in an electric circuit.

(i) 

(ii) 

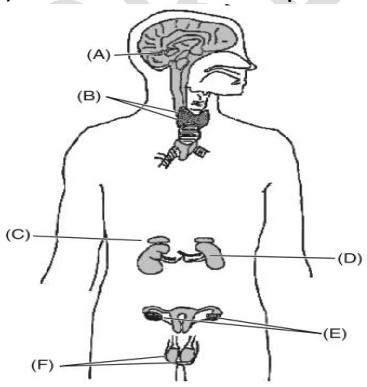
(iii) Draw a closed circuit diagram consisting of 0.5m long nichrome wire XY, an ammeter, a voltmeter, four cells of 1.5V and a plug key.

OR

What does an electric circuit mean? Name a device that helps to maintain a potential difference across a conductor in a circuit. When do we say that the potential difference across a conductor is 1 volt? Calculate the amount of work done in shifting a charge of 2 coulombs from a point A to B having potentials 110V and 25V respectively.

20. (i) Identify the endocrine glands A, B, C, D, E and F in the given diagram. 5

(ii) List the functions of parts D and F.



21. Explain why carbon forms compounds mainly by covalent bonds. Explain in brief two main reasons for carbon forming a large number of compounds. Why does carbon form strong bonds with most other elements? 5marks

OR

(i) Solid calcium oxide was taken in a container and water was added slowly to it.
(a) Write the observation.
(b) Write the chemical formula of the product formed.

Section - 'E'

22. Write two precautions to be taken while tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. 2marks

OR

Write two precautions to be taken while finding the image distance using a convex lens.

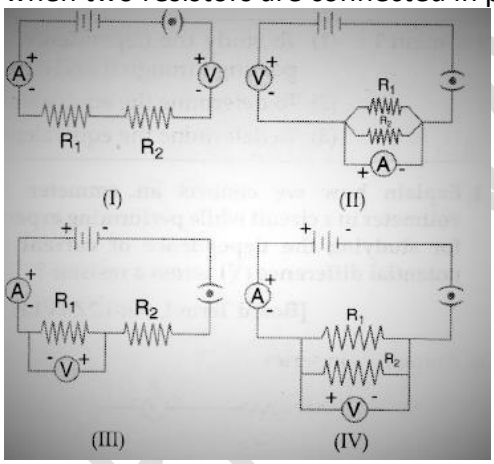
23. In which asexual reproduction two individuals are formed from a single parent and the parental identity is not lost? Draw the initial and the final stages of this type of reproduction to justify your answer. Write the event which this process starts. 2marks

24. What will be the action of liquid antacid on litmus paper? Is it acidic or basic? 2marks

OR

What happens when barium chloride solution and sodium sulphate solution are mixed together? Write the chemical equation.

25. The correct voltmeter and ammeter connections, in an experiment to find the equivalent resistance when two resistors are connected in parallel is shown in. 2marks



26. What precautions should be taken while studying the properties of ethanoic acid.2marks

27. Solution of ferrous sulphate, zinc sulphate, copper sulphate and aluminium sulphate were separately taken in four test-tubes and some iron nails were placed in each of the solutions. What will you observe after few seconds? 2marks

OR

Why KOH solution is kept in the test-tube inside the air-tight conical flask while doing the experiment of respiration of seeds?