PRE-BOARD EXAMINATION (FEBRUARY-2019)

CLASS: X **SCIENCE** **Time: 3 hrs.**

MAX. 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 sections B, C, D and E.

(iv) Question numbers 1 and 2 in Section-A are one mark questions. They 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 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. Which pancreatic enzyme is effective in digesting proteins? (1)

2. Name any two household wastes which can be easily recycled but are generally thrown in the dustbin by us. (1)

SECTION-B

3. You are given a concave mirror, plane mirror, and a convex mirror .How can you distinguish between them by just looking your face in them. State the common nature of the image that you see in all of them. (2)

OR

What are the difference between a virtual and real image?

4. What is an alloy? State the constituents of solder. Which property of solder makes it suitable for welding electrical wires? (2)

5. Why cannot fertilization take place in flowers if pollination does not occur? (2)

SECTION-C

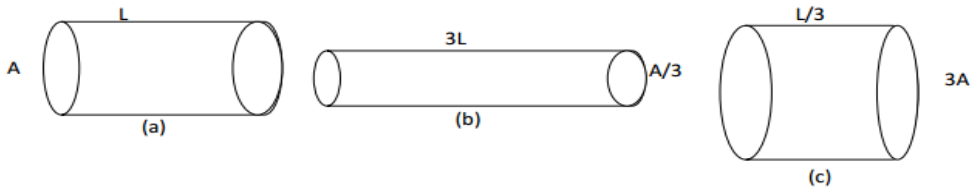
6. If an object 7cm in height is placed at a distance of 12cm from a convex lens of focal length 8cm, find the position, nature and height of the image? (3)

OR

Draw ray diagrams in the following cases to show the position and nature of image formed by a concave mirror when the object is placed.

(i) Between pole and focus
(ii) Between focus and center of curvature
(iii) At principal focus

7. The figure below shows three cylindrical copper conductors along with their face areas and lengths. Compare the resistance and the resistivity of the three conductors. Justify your answer. (3)



8. What is the (i) the highest a(ii)lowest total resistance that can be secured by combinations of four coils of resistance 2 Ω,10 Ω,4 Ω and 20Ω? (3)

9. What are fossil fuels? How are they formed? (3)

10. What is a redox reaction? When magnesium ribbon burns in air with dazzling flame and forms a white ash, is magnesium oxidised or reduced? Why? Write balanced chemical equation of this reaction. (3)

11. An element X (atomic number 17) reacts with an element Y (atomic number 20) to form a compound. (3)
    (a) Write the position (group number and period number) of these elements in the modern periodic table.
    (b) Write the formula of the compound formed. Justify your answer in each case.

12. Tooth enamel is one of the hardest substance in our body. State the condition when it starts corroding. What happens when food particles left in the mouth after eating degrade? What should we do to prevent this? (3)

OR

A white powder 'A' is an active ingredient of antacids and is used in preparation of cakes.
    (a) Name the compound and write its chemical formula.
    (b) State the reaction that takes places when 'A' is heated during cooking?
    (c) State the chemical property of 'A' in each case on which the following uses are based
        (i) As an antacid.
        (ii) As an ingredient in cakes and bread.

13. Give reasons: (3)

a) Pituitary is often termed as master endocrine gland.
b) Pancreas helps in digestion and regulates blood sugar levels.
c) Adrenals are known as gland of emergency.

14. a) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide during transportation of blood in human beings. (3)
b) What is the advantage of separate channels in mammals and birds for oxygenated blood?

15. What is biological magnification? Will the levels of this magnification be different at different levels of the ecosystem? (3)

OR

What are tropic levels? Give example of a food chain having four steps and name the different levels according to their nutrition habit.

SECTION-D

16. A student is unable to see clearly the words written on the blackboard placed at a distance approximately 5m from him. Name the defect of vision the boy is suffering from. Explain the method of correcting this defect. Draw ray diagram for the (5)
(i) Defect of vision and also
(ii) For its correction.

17. With the help of an activity to illustrate the pattern of magnetic field around a current carrying straight conductor. Name and state the rule that is used to find the direction of magnetic field associated with a current carrying conductor. (5)

OR

Explain an activity to show that a current carrying conductor experiences force when placed in a magnetic field. Name and state the rule which gives the direction of force acting on the conductor

18. (a) What is a soap? Why are soaps not suitable for washing clothes when the water is hard? (5)
(b) Explain the action of soap in removing an oily spot from a piece of cloth.
(c) Write any two advantages and two disadvantages of using detergents over soap.

OR

(a) What is meant by homologous series of organic compounds? Write the chemical formula of two consecutive members of aldehyde family and state the part of these compounds that determines their (i) Physical properties and (ii) chemical properties.
(b) Complete the reactions given below

(i) $CH_3\text{-}CH_2\text{-}OH \xrightarrow{\text{alk.KMn}O_4/\text{Heat}}$

(ii) $CH_2 = CH_2 + H_2 \xrightarrow{\text{Ni}}$

19. (a) What is meant by corrosion? Name any two methods used for the prevention of corrosion. (5)
(b) Suppose you have to extract metal 'M' from its enriched sulphide ore. If 'M' is in the middle of the reactivity series, write various steps used in extracting this metal.

20. a) Name the organ that produces sperms as well as secretes a hormone in human males. Name the hormone it secretes and write its functions. (5)
b) Name the parts of the human female reproductive system where fertilization occurs.
c) Explain how the developing embryo gets nourishment inside the mother' body.

21. a) In a monohybrid cross between tall pea plants denoted by TT and short pea plants denoted by tt. Preeti obtained only tall plants denoted by Tt in the F1 generation. However, in F2 generation she obtained both tall and short plants. Using the above information explain the law of dominance. (5)
b) Give two differences between:
(i) Heredity and variation
(ii) Dominant and recessive trait.

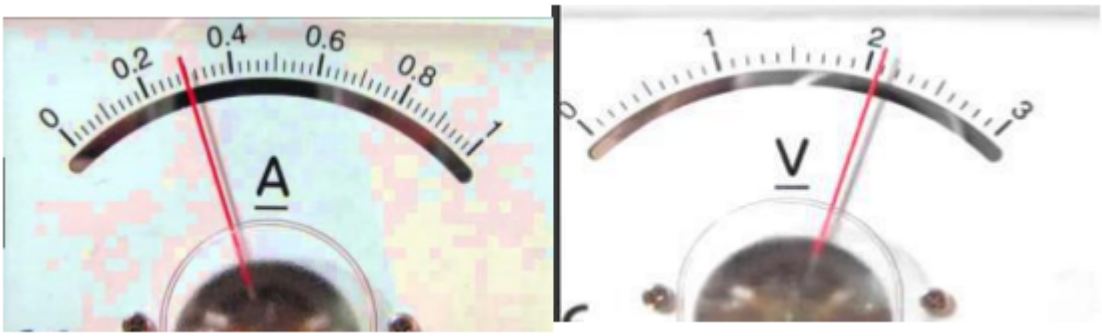
OR

a) Name any five vegetables generated from a common ancestor through artificial selection rather than natural selection. Also mention the features for which each vegetable is selected.

b) Explain the terms 'analogous organs' and 'homologous organs 'with examples.

SECTION-E

22. The current flowing through a resistor connected in an electrical circuit and the potential difference developed across its ends are shown in the given ammeter and voltmeter. Find the least count of the voltmeter and ammeter .What is the voltage and the current across the given resistor? (2)



23. Consider the path of a ray of light passing through a rectangular glass slab for different angles of incidence. (i) Which one is greater: angle of incidence or angle of emergence? (ii) What happens to the emergent angle on increasing the incident angle at air-glass interface? (iii) State the conditions when no refraction occurs. (2)

OR

Sunita takes a mirror which is depressed at the Centre and mounts it on a mirror stand. An erect and enlarged image of her face is formed. She places the mirror on a stand along a meter scale at 15 cm mark. In front of this mirror, she mounts a white screen and moves it back and forth along the meter scale till a sharp, well defined inverted image of a distant tree is formed on the screen at 35 cm mark.
(i) Name the mirror and find its focal length.
(ii) Why does Sunita get sharp image of the distant building at 35 cm mark?

24. Why does the colour of copper sulphate solution change when an iron nail is dipped in it? Write two observations. Write the balanced chemical equation of the above reaction. (2)

25. On adding acetic acid to a solid X a colourless and odourless gas Y evolves which turns lime water milky. Identify X and Y. Write the chemical reaction involved in the production of Y. (2)

26. List the steps of preparation of temporary mount of a leaf peel to observe stomata. (2)

OR

A student is to conduct an experiment to show CO_2 is released during respiration. List two precautions that he/she must take for obtaining correct observation.

27. Students were asked to observe the permanent slides showing different stages of budding in yeast under high power of a microscope (2)

a) Which adjustment screw (coarse/fine) were you asked to move to focus the slides?

b) Draw three diagrams in correct sequence showing budding in yeast.