



DELHI PUBLIC SCHOOL, VINDHYANAGAR

PRE BOARD EXAM-2 (2018-19)

SUBJECT-SCIENCE

CLASS-X

Time: 3:00 Hrs.

MM:80

General instructions:

- i) The question paper comprises of five section-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. These are to be answered in one word or in one sentence.
- v) Question numbers 3 and 5 in section-B are two mark questions. These are to be answered in about 30 words each.
- vi) Question numbers 6 and 15 in section-C are three mark questions. These are to be answered in about 50 words each.
- vii) Question numbers 16 and 21 in section-D are five mark questions. These are to be answered in about 70 words each.
- viii) Question numbers 22 and 27 in section-E are based on practical skills. Each question is of two mark. These are to be answered in brief.

PHYSICS : 1, 5, 9, 10, 11, 16, 17, 22, 23

CHEMISTRY : 3, 6, 7, 8, 18, 19, 24, 25

BIOLOGY : 2, 4, 12, 13, 14, 15, 20, 21, 26, 27

SECTION-A

1. Which one is having lesser resistance? a 220V, 60 W bulb or a 220V, 40 W bulb? 1
2. Write down a food chain which ends with hawk. 1

SECTION-B

3. A student dropped few pieces of marble in dilute HCl contained in a test tube. The evolved gas was passed through lime water.
 - a] What change would be observed in lime water ?
 - b] Write balanced chemical equation for the above change? 2
4. a. A Mendelian experiment consisted of breeding pea plants bearing violet Flowers with pea plants bearing white flowers. Violet being the dominant character. What will be the result in F1 progeny?
 - b. Write the energy conversion that takes place in a hydropower plant. 2
5. A mass is suspended vertically, with a spring. What happens, if a current is passed through the spring? 2

SECTION-C

6. State what happens when zinc granules are heated with sodium hydroxide. Write balanced equation and the name of main product formed. [3]
7. i] Define an Alloy.
ii] What are the constituents of solder alloy?
iii] Which property of solder makes it suitable for welding electrical wires? [3]

OR

- i] Show the formation of Na_2O by electron transfer method between the atoms.
ii] Why are ionic compounds soluble in water?
iii] Why do the ionic compounds not conduct electricity in solid state but do conduct in molten state?
8. What is meant by refining of metal? Draw a diagram of electrolytic refining of copper and name the Substances used as cathode, anode and electrolyte. [3]
9. Name and state the rule used for determination of direction of induced current due to a changing field and give one practical application of this phenomenon in everyday life. [3]
10. How will you use two identical prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Draw the diagram. [3]

11. (a) Why is a normal eye not able to see clearly the objects placed closer than 25 cm?
- (b) The far point of a myopic person is 80 cm in front of the eye. What is the nature and power of lens required to correct the problem? (1+2)

OR

Write three differences between Alternating current and Direct current. (3)

12. Pertaining to endocrine system what will you interpret if:
- You observe swollen neck in people living in the hills.
 - Over secretion of growth hormone takes place during childhood.
 - Facial hair develops in boys aged 13. (3)
13. a. Name any four categories of people who depend on the forest resources, mentioning major needs of each category.
- b. How do advantages of exploiting natural resources with short-term aims differ from managing our resources with a long-term perspective? (3)
14. How are the wastes produced in nuclear power plant different from those produced in a thermal power plant? What happens to the waste of a power plant? (3)
15. a. What are fossils? How is age of fossils determined?
- b. Mention two reasons for the appearance of variations among the progeny formed by sexual reproduction. (3)

OR

What is bio gas? Describe various steps involved in obtaining bio gas?

SECTION-D

- 16 (a) Draw a ray diagram in each of the following cases to show the position and nature of image formed when object is placed: (3)
- (i) Between F and P of concave mirror
 - (ii) Between F_1 and $2F_1$ of convex lens
 - (iii) At the centre of curvature of concave mirror.
- (b) An object 2cm high is placed at a distance of 16cm from a concave mirror, which produces a real image 3cm high. Find the focal length of mirror and position of image. (2)
17. State the new Cartesian sign convention used for spherical mirrors. Explain sign convention with a diagram for concave mirror. (5)
18. a] An organic compound B of molecular formula $C_2H_4O_2$ reacts with sodium metal to form a compound C and evolves a gas which burns with pop sound. Compound B on treatment with an alcohol A in presence of a mineral acid forms a sweet smelling compound D of molecular formula $C_3H_6O_2$. On addition of NaOH to B, it also gives C and water. D on treatment with NaOH gives back C and A. Identify A, B, C, D with the equations involved. [5]

OR

- a] Write chemical equation of reactions of ethanoic acid with :
- Sodium metal
 - Sodium carbonate
 - Ethanol in presence of concentrated H_2SO_4 .
- b] With the help of diagram, explain the cleansing action of soap. [3+2]
19. a] Write the period number and group number of the element calcium.
- b] How do atomic radius, valency and metallic character vary down a group?
- c] How do atomic size and metallic character of elements vary along a period from left to right?
- d] Which element has twice as many electrons in its second shell as in its first shell?
- e] Give two points of differences between Mendeleev's Periodic table and Modern periodic table. [5]
20. Name the following –
- Thread like non-reproductive structures present in Rhizopus.
 - 'Blobs' that develop at the tips of the non-reproductive threads in Rhizopus.
 - Give one example each of a unisexual and a bisexual flower.
 - Mention the changes the flower undergoes after fertilization. 5

21. Name the phenomenon that governs the following:
- i. Green beetles living in green bushes are not eaten by the crows.
 - ii. Number of blue beetles in green bushes increases, only because the red beetles living there were trampled by a herd of elephants.
 - iii. No 'medium height plants' are obtained in F1 generation, upon crossing pure tall and dwarf pea plants.
 - iv. Tails of mice were surgically removed for several generations, still mice had tails in the following generations.
 - v. During artificial selection, which features of wild cabbage were selected to give rise to- [5]
 - i. Cabbage
 - ii) Cauliflower

OR

- a. What is lymph? How is composition of lymph different from blood plasma? What is the direction of its flow?
- b. List two functions of the lymphatic system.
- c. State differences between the blood vessels-artery, vein and capillary.

SECTION-E

22. A student has obtained a sharp image of a lighted candle on the screen using a convex lens. Now he wants to focus a distant lamp on a far away electric pole. In which direction should the lens be moved for this purpose with respect to the screen, to get the sharp image on screen? Justify your answer?

23. (a) Define the angle of deviation? 1
(b) What are the factors on which angle of deviation depends? 1
24. On adding few drops of universal indicator to three unknown colourless solutions P, Q, R taken separately in three test tubes, a student observed the changes in colour as green in (P), red in (Q) and Violet in (R).
- a] Write the decreasing order of their pH.
b] In which of the test tube the solution is basic in nature? [2]
25. A student is testing water to know which is best for cleansing purposes with soap. He collects the water from rain, tap, hand pump and from pond. Which water should he take to find best cleansing action of soaps and why? [2]
26. Give reason for the following :-
- a. Most commonly safranin stain is used for staining sections of plants .
b. A leaf peel is mounted in glycerine .
27. a) What is the role of KOH in the experiment that show that CO_2 is produced during respiration?
b) Why do we use germinating seeds in this experiment?

OR

What are the various parts of an embryo of a dicot seed?

28. The components of an electric circuit are 0.5m long nichrome wire X Y, an ammeter, a voltmeter; four cells of 1.5V each, rheostat and a plug key. Draw a diagram of the circuit to study the relation between potential difference across the terminals X and Y of the wire and current flowing through it. 3

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