

ST. ARNOLD'S CENTRAL SCHOOL, PUNE  
PRE-BOARD EXAMINATION – 1 (2017-18)  
SUBJECT: SCIENCE

CLASS: X

M.M: 80

General Instructions:

- (i) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) All questions of Section-A and B are to be attempted separately.
- (iv) There is an internal choice in two questions of three marks each and one question of five marks.
- (v) Question numbers 1 and 2 in Section-A are one mark questions. They 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 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 5 marks questions. These are to be answered in 70 words each.
- (ix) Question numbers 22 to 27 in Section- B are based on practical skills. Each question is a two marks question. These are to be answered in brief.

Section – A

1. Name the causative agent of the disease "Kala-azar" and it's mode of asexual reproduction. (1)
2. What is the role of acid in our stomach? (1)
3. Lithium, sodium and potassium form Dobereiner's triads. The atomic masses of lithium and potassium are 7 and 39 respectively.
  - i) Predict the atomic mass of sodium. ii) Write the electronic configuration of sodium. (2)
4. An object is placed at a distance of 30cm from a convex mirror, the magnification produced is  $\frac{1}{2}$ . Where should the object be placed to get magnification of  $\frac{1}{3}$ . (2)
5. Give two advantages of using nuclear energy. (2)
6. i) State the difference between Fleming's left hand rule and right hand rule  
ii) Name the electrical devices where these rules find an important application.

**OR**

- What is fuse? Explain the factors which can cause overloading of domestic electric circuit. (3)
7. Draw a schematic diagram of an electric circuit comprising of 3 cells, an electric bulb, an ammeter, plug key in the ON mode and another circuit diagram with the same components but with two bulbs and voltmeter across the combination. (3)

8. Name the products formed on strong heating of ferrous sulphate crystals. What type of chemical reaction occurs in this change? Is it a redox reaction or not? Justify your answer. (3)
9. Differentiate between the arrangement of elements in Mendeleev's periodic table and in Modern periodic table. (3)
10. In human alimentary canal, name the site of complete digestion of various components of food. Explain the process of digestion. (3)

OR

- What is double circulation in human beings? Why is it necessary? (3)
11. How do Mendel's experiments show that traits are inherited independently? (3)
12. An object placed on a meter scale at 8cm mark was focused on a white screen placed at 92 cm mark, using a converging lens placed on the scale at 50 cm mark. (3)
- a) Find the focal length of converging lens.
- b) Find the position of image formed if the object is shifted towards the lens at a position of 29cm.
- c) Draw the ray diagram to show the formation of the image in case (b) as said above. (3)
13. Name the three products obtained on electrolysis of an aqueous solution of sodium chloride. Name the process. Write one commercial application of each product. (3)

OR

- What is the chemical name of Plaster of Paris? How is it prepared? List its two important uses. (3)
14. State the meaning of inherited traits and acquired traits. Which of the two is not passed on to the next generation? Explain with the help of an example. (3)
15. We hear and read about female foeticide, which is really a wrong practice. In some families, be it rural or urban, females are tortured for giving birth to a girl child. They do not seem to understand the scientific reason behind the birth of a boy or a girl. In your opinion, the approach of the society towards mother in this regard is correct or not? Explain the scientific reason. (3)
16. a) Consider a circular loop of wire lying in the plane of the paper. Let the current pass through the loop clockwise. With the help of diagram explain how the direction of the magnetic field can be determined inside and outside the loop. (3)

- b) Name the law used to find the direction of magnetic field.  
c) Draw a diagram to represent a uniform magnetic field in a given region.  
d) List two properties of magnetic field lines. (5)
17. Describe the following chemical properties of carbon compounds briefly and give one chemical reaction for each.  
i) combustion ii) addition iii) substitution iv) esterification v) oxidation.

**OR**

- What is the difference between soaps and detergents? State in brief the action of soaps in removing an oily spot from a shirt. Why soaps are not considered suitable for washing where water is hard? (5)
18. a) i) Draw a neat diagram of human brain and label Medulla and Cerebellum  
ii). Write the functions of the above mentioned parts  
b) List four plant hormones. Write one function of each. (5)
19. a) Name the defects of vision when a person cannot see clearly.  
i) the nearby objects ii) the distant objects  
b) A person suffering from a defect of vision uses a corrective lens of power -2D. Find the nature and focal length of the corrective lens. Draw ray diagrams showing:  
i) defected eye ii) correction for this defect. (5)
20. a) Explain with an example how the metal (X) which is low in reactivity series and metal (Y) which is high in reactivity series are obtained from their compounds by reduction process.  
b) Write the electronic configuration of potassium and chlorine. Show the formation of potassium chloride by transfer of electrons.  
c) List any two observations when a highly reactive metal is dropped in water. (5)
21. a) Explain the phenomenon of "biological magnification" How does it affect organisms belonging to different trophic levels particularly the tertiary consumers?  
b) "Damage to the ozone layer is a cause for concern." Justify this statement. Suggest any two steps to limit this damage. (5)

**Section B**

22. A student adds a spoonful of powdered sodium hydrogen carbonate to a flask containing ethanoic acid. List two main observations he must note in his notebook, about the reaction that takes place. Also write chemical equation for the reaction. (2)

23. Write two properties of acid and base depending on litmus test and reaction with metals. (2)
24. Out of potato, carrot, spines of cacti, spinach
- a) Which two are homologous organs? (2)
- b) Which two are analogous organs? (2)
25. When a student observes a temporary mount of leaf peel under a microscope, he observes two different types of cells in leaf peel. Name these two different types of cells. On what basis can a student differentiate between these two cells? (2)
26. Draw a ray diagram to show refraction of light through a triangular glass prism and label angle of prism, angle of incidence, angle of emergence and angle of deviation. (2)
27. In an experiment to study relation between the potential difference across a resistor and the current through it, a student recorded the following observations.

P.D. (V)	1.0	2.2	3.0	4.0	6.4
Current, I (A)	0.1	0.2	0.6	0.4	0.6

- i) Which one of the above sets of readings can be rejected?
- ii) Calculate the mean value of resistance based on the remaining four sets of readings.

OR

- 27.a) A voltmeter has a least count of 0.05V. While doing Ohms law experiment, a student observed that the pointer of the voltmeter coincides with 15<sup>th</sup> division. Find the observed reading?
- b) Mention the condition under which charges can move in a conductor. Name the device which is used to maintain this condition in an electric circuit for verifying Ohms law. (2)