



DELHI PUBLIC SCHOOL

SAIL TOWNSHIP, RANCHI

PRE- BOARD-I EXAMINATION (2017-18)

SUBJECT:- SCIENCE

Class:-X
Time- 3 Hrs.

Roll No.-
Max. Marks - 80

General Instructions:-

- The question paper has 27 questions in all. All questions are **compulsory**.
- Marks are indicated against each question.
- Questions from serial number 1 to 2 of **Section- A** are very short answer type questions. Each question carries **one mark**.
- Questions from serial number 3 to 5 of **Section- A** are **2 marks** questions. Answer of these questions should not exceed **30 words** each.
- Questions from serial number 6 to 15 of **Section- A** are **3 marks** questions. Answer of these questions should not exceed **50 words** each.
- Question number 16-21 of **Section- A** is **5 marks** questions. Answer of these questions should not exceed **70 words** each.
- Question numbers 22 to 27 in **section -B** are based on practical skills. Each question is of **2 marks**.

Section - A

- Q.1 Mention the reproductive parts of a flower. [1]
- Q.2 Why do the herbivores have their small intestine longer than the carnivores? [1]
- Q.3 From the following elements: [2]

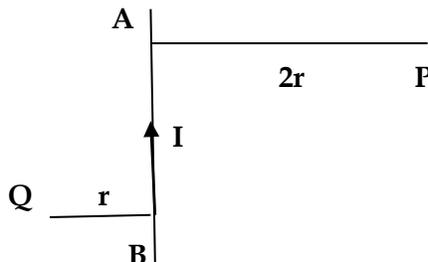
Be ,F ,K ,Ca (atomic no.: Be-4 ,F-9 , k-19 , Ca-20)

(I) Select the element having one electron in the outermost shell.

(II) two elements of the same group.

Write the formula and mention the nature of the compound formed by the union of K and element X (atomic no. 17).

- Q.4 AB is a straight current carrying conductor in a plane of the paper as shown in figure. [1+1=2]



What are directions of the magnetic field produced by it at points P and Q? What will be the ratio of the magnetic fields at points P and Q?

- Q.5 Mention two limitations of harnessing wind energy. [2]

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Q.6 (a) Write down the dissimilarities between kw and kwh?

(b) An electric fuse of rating 3A is connected in a circuit in which an electric iron of power 1 kw is connected which operates at 220 volt. What would happen? Explain. [1+2=3]

OR

(a) What do you mean by the rating of an electric fuse?

(b) Draw a neat and clean labelled diagram of the domestic electric circuits. Why the electrical appliances are joined in parallel connection in the above circuits? [1+2=3]

Q.7 (a) The Crystalline lens of people at old age becomes milky and cloudy. This causes partial or complete loss of vision. State the name of this condition and how this type of eye can restore vision? [1+2=3]

(b) Mr. Arihant went to an eye specialist for check up. He prescribed him to use spectacle lens of +0.5 D power.

(i) Name the defect of vision he is suffering from.

(ii) Find the focal length of spectacle lens?

Q.8 A metal nitrate A on heating gives yellowish brown coloured metal oxide along with brown gas B and a colourless gas C. Aqueous solution of A on reaction with aqueous solution of potassium iodide forms a yellow precipitate of compound D. Identify A, B, C D. Also identify the types of both the reactions. Metal present in A is used in alloy which is used for soldering purposes. [3]

Q.9 State reasons for the following observations: [1/2x6=3]

(a) Tap water conducts electricity whereas distilled water does not.

(b) Dry hydrogen chloride gas does not turn blue litmus red whereas dilute hydrochloric acid does.

(c) During summer season, a milkman usually adds a very small amount of baking soda to fresh milk.

(d) For a dilution of acid, acid is added into water and not water into acid.

(e) Ammonia is a base but does not contain hydroxyl group.

(f) Plaster of paris should be stored in a moisture - proof container.

Q.10 What is lymph? Mention two functions of lymph. [3]

OR

What are the different ways in which glucose is oxidized to provide energy in various organisms?

Q.11 How is the sex of a child determined in human beings? Explain with the help of diagram. [3]

Q.12 (a) State an example of the most beautiful natural spectrum formed due to dispersion of sunlight which appears in the sky just after a rain shower. Write the name of different phenomenon occurring in the above example. [1½+ 1½ = 3]

(b) Define the scattering of light. How it is related to the wavelength of light? Sky would appear black in daytime if earth had no atmosphere, explain.

- Q.13 What is sustainable management ? The environmentalists are insisting upon sustainable resource management. State its four advantages. [3]

OR

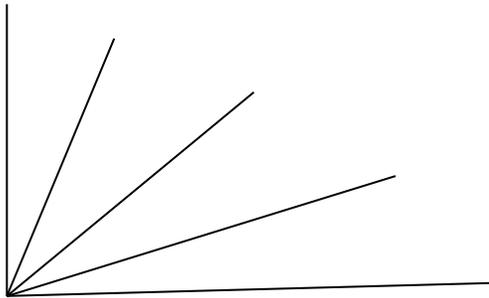
What is a dam ? Write two main Advantages and two ill- effects of constructing a big dam.

- Q.14 What is speciation? What are the factors that lead to speciation? [3]

- Q.15 On world population day Rohit and his friends arranged an awareness campaign programme in their locality. Some elderly people rebuked the children and asked them not to talk on such things in public. The children convinced the elders about the need for the programme and on understanding their point of view, they also joined the campaign.

- What values did Rohit and his friends show on this occasion?
- Why is such awareness programme necessary?
- What role has the government played in controlling population explosion [3]

- Q.16 (a) Three V-I graphs are drawn individually for two resistors and their series combination.



Out of A, B and C which one represents the graph for series combination of the other two.

$$[1+1\frac{1}{2} + 1\frac{1}{2} + 1= 5]$$

- (b) What would be the reading of ammeter and voltmeter in the given circuit.

- State ohm's law and obtain the SI unit of resistivity of the material of the conductor.
- If 100 joule of work is required to transfer 20 coulomb from 15 volt to the certain X volt. Calculate the value of X.

- Q.17 (a) What is a soap ? Why are soaps not suitable for washing clothes when the water is hard?
(b) Explain the action of soap in removing an oily spot from a piece of cloth.
(c) What are detergents chemically? Write two advantages of synthetic detergents over soaps. [2+1+2=5]

OR

(A) Write chemical equations to show what happens when

- (a) ethanol is heated with concentrated sulphuric acid at 443K .
- (b) ethanol reacts with ethanoic acid in the presence of an acid acting as a catalyst .
- (c) an ester reacts with a base.

(B) (a) What is a homologous series of compounds ? List any two of its characteristics.

(b) Give a test to distinguish ethane from ethene. [3+1+1=5]

Q.18 (a) Draw a diagram of the human brain and label the following parts

- I. cerebrum
- II. mid brain
- III. medulla
- IV. cerebellum

(b) How is the brain protected?

(c) Name the hormone whose deficiency causes dwarfism. [5]

Q.19 (a) One half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? [1+1½+1½+1=5]

(b) An object is placed 24 cm away from a concave mirror and its image is 16 cm away from it. Find the focal length of the concave mirror.

(c) When the ray of light enters from one transparent medium to another transparent medium, then there is bending of ray of light at the interface. Write the name of the phenomenon related to it. State the Laws of the above concern.

(d) The absolute refractive indices of the glass and water are $\frac{3}{2}$ and $\frac{4}{3}$ respectively. Show the situations of the ray of light in which the relative refractive indices are greater than one and less than one .

Q.20 (a) How could the modern periodic table remove various anomalies of Mendeleev's periodic table ? [3+2=5]

(b) Can the following groups of elements be classified as Dobernier's triad ?

- (i) Na , Si , Cl
- (ii) Be , Mg , Ca

Atomic mass of Be- 9 , Na-23 ,Mg- 24 ,Si - 28 ,Cl - 35.5 , Ca- 40. Explain by giving reason.

Q.21 a. Differentiate between biodegradable and non biodegradable substances with examples.

b. List two ways in which biodegradable waste can affect the environment.

c. Mention two advantages of cloth bags over plastic bags during shopping. [5]

OR

a. Construct an aquatic food chain showing four trophic levels.

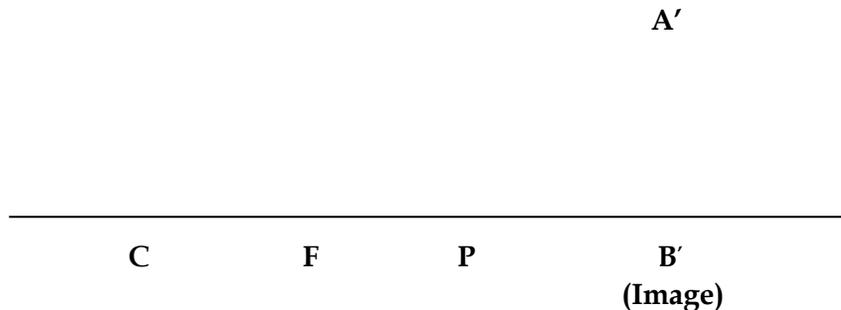
b. Why does a food chain consist of only three to four trophic levels?

c. What will happen if we kill all the organisms in one trophic level? [5]

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Section - B

- Q.22 What would you observe if you put some aluminium pieces in copper sulphate solution .
Write the equation and the observation. [2]
- Q.23 A solution X gives orange colour when a drop of universal indicator is added to it .On the other hand , another solution Y gives bluish- green colour when a drop of universal indicator is added to it. What are the types of solutions X and Y and what type of P^H would they have? [2]
- Q.24 During the experiment a student takes the leaf from boiling water and put it in alcohol and starts boiling. The teacher stops him from doing so.
- Why did the teacher stop the student from boiling the leaf in alcohol?
 - Why is it necessary to boil the leaf in alcohol?
- Q.25 Why is it suggested to keep the mouth of the flask air-tight while preparing yeast culture? [2]
- Q. 26 The image formed by a concave mirror is shown in the following figure. [2]



Locate the position of object by redrawing the figure in answer book.

- Q.27 In an experiment, the student was asked to trace the path of a ray of light emerges through a rectangular glass slab. Draw the ray diagram and mark the angle of incidence (i), angle of refraction (r) and angle of emergence (e) . [2]