

Nayak's Tutorials

Year : 2025 - 2026
Std: X_SSC

Sample Paper - 3
Science - 1

Marks : 40
Duration: 2 Hrs

Q.1. A) Choose the correct alternative and rewrite the statement.

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I) Write the number of covalent bonds in the molecule of propane, C_3H_8 .

(A) 10 (B) 2 (C) 8 (D) 6

II) The Escape velocity on Earth is _____.

(A) 11.2km (B) $11.2 \frac{Km}{sec}$ (C) $11.2 \frac{m}{sec}$ (D) $11.2 \frac{miles}{sec}$

III) In which block of modern periodic table are metalloids found.

(A) s-block (B) p-block (C) d-block (D) f-block

IV) The unit of Electrical power is _____.

(A) joules (B) watt (C) joules $\times$ sec (D) Horsepower

V) Formation of calcium hydroxide is _____ type of reaction.

(A) Decomposition (B) Exothermic (C) Endothermic (D) Displacement

Q.1.B) Solve the following Questions.

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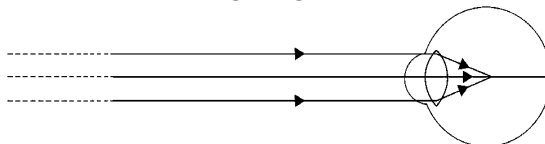
I) Define Latent heat of vaporization.

II) What is the height of high Earth orbit and low Earth orbit from Earth in (km).

III) Name the metal in liquid state and also write the name of its ore.

IV) Out of Li and K, which have stronger metallic character and why?

V) Which lens should be used for following diagram and name the defect?



Q.2) Solve the following Questions. (Any Five)

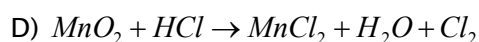
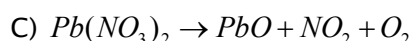
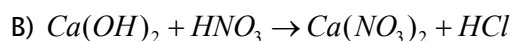
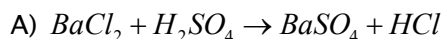
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I) The electronic configuration of two elements 'A' and 'B' are 2,8,7 and 2,8,8,2 respectively. Write the atomic number of these elements. What will be formula of the compound formed and the nature of bond between them when these two elements chemically combine together.

II) Draw the ray diagram for convex lens when an object is kept between optical centre and focus (F_1)

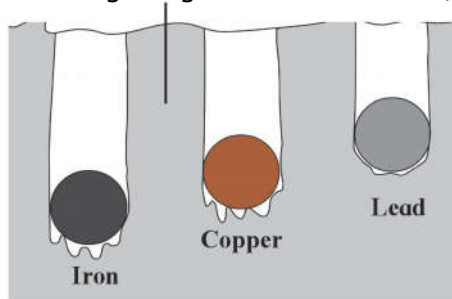
III) Give reason. Why in cold regions in winters, the rocks crack due to anomalous Expansion of water.

IV) Balance the following chemical equations.



V) Draw the structure of 2-butanone and hexanal.

VI) Study the following Diagram & answer the Question.



i) Which property of substance can be studied?

ii) Describe that property in Minimum words.

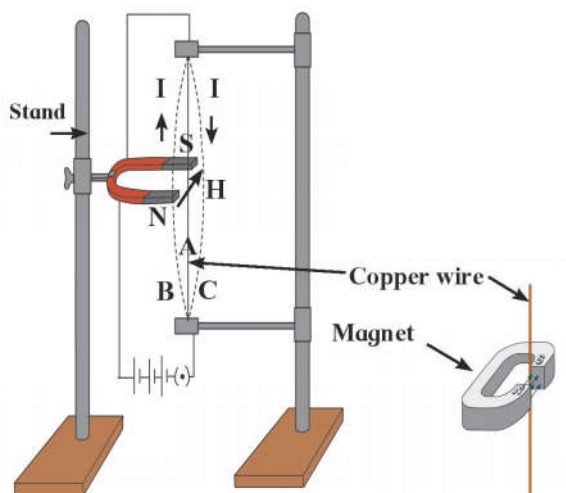
VII) Ajay and Atul are sitting at a distance of 1m from each other. Their masses are 75kg and 80 kg respectively, what is the force of attraction between them.

$$(G=6.67 \times 10^{-11} \frac{Nm^2}{kg^2})$$

Q.3) Solve the following Questions. (Any Five)

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I) Observe the following diagram and answer the questions.



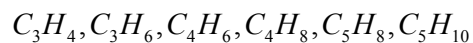
(i) Which principle is explained here?

(ii) Which rule is used to find the direction of the force?

(iii) In which machine this principle is used?

II) Explain Artificial satellites with their uses.

III) What is meant by homologous series of carbon compounds? Classify the following carbon compounds into two homologous series and name them.



IV) Give reason why a rainbow is the combined effect of the refraction, dispersion and total internal reflection of light with a diagram.

V) A metal 'X' acquires a green colour coating on its surface on exposure to air.

A) Identify the metal 'X' and name the process responsible for this change.

B) Name and write the chemical formula of the green coating formed on this metal.

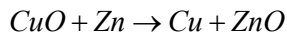
C) List two important methods to prevent the process.

VI) A carboxylic acid $C_2H_4O_2$ reacts with an alcohol in the presence of an acid catalyst to form a compound 'X'. The alcohol on oxidation with alkaline $KMnO_4$ followed by acidification gives the same carboxylic acid $C_2H_4O_2$. Write the name and structure of (i) carboxylic acid (ii) alcohol (iii) compound 'X'.

VII) A) Why is respiration considered an exothermic reaction?

B) Define the terms—oxidation and reduction.

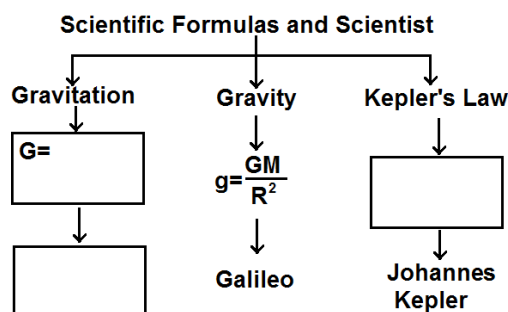
C) Identify the substance that is oxidised and reduced in the reaction:



Q.4) Solve the following Questions. (Any One)

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- I) a) Let the period of revolution of a planet at a distance R from a star be T. Prove that if it was at a distance of 2R from the star, its period of revolution will be $\sqrt{8}$ T.
b) Complete the chart:



II) Study the following table in which positions of six elements A,B,C,D,E and F are shown as they are in the Modern Periodic Table.

Group → Period →	1	2	3-12	13	14	15	16	17	18
2		A					B		C
3	D				E				F

On the basis of the above table, answer the following questions:

1. Name the element which will form only covalent compounds.
2. Which element is a metal with valency one?
3. Which element is a non-metal with valency two?
4. Out of D and E, which has a bigger atomic radius and why?
5. Write the formula of the compound formed when B combines with D.