

NEW STANDARD ACADEMY

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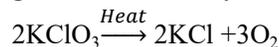
CLASS 10 (21-05-2024) DPP (Academy)

PHYSICS

1. Why do stars twinkle?
2. Explain why the planets do not twinkle?
3. Why does the sun appear red early in the morning?
4. Why does the sky appear dark instead of blue to an astronaut?
5. A student has difficulty in reading the black board while sitting in the last row. What could be the defect the child is suffering from? How can it be corrected?
6. Name the phenomenon occurring in nature due to dispersion of light?
7. Out of the blue and red light, which is scattered most by the atmosphere of the earth?
8. What is Tyndall Effect?
9. State two reasons due to which myopia may be caused?
10. What part of the eye can be donated after death?

CHEMISTRY

1. The following reaction is used for the preparation of oxygen gas in the laboratory



Which of the following statement(s) is (are) correct about the reaction?

- a) It is recombination reaction and is endothermic in nature
- b) It is a combination reaction
- c) It is a decomposition reaction and is accompanied by release of heat
- d) It is a photochemical decomposition reaction and exothermic in nature

2. Which one of the following processes involve chemical reactions?
 - a) Storing of oxygen gas under pressure in a gas cylinder
 - b) Liquefaction of air
 - c) Keeping petrol in a china dish in the open
 - d) Heating copper wire in the presence of air at high temperature.
3. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?
 - a) $2\text{H}_2(l) + \text{O}_2(l) \xrightarrow{\Delta} 2\text{H}_2\text{O}(g)$
 - b) $2\text{H}_2(g) + \text{O}_2(l) \xrightarrow{\Delta} 2\text{H}_2\text{O}(l)$
 - c) $2\text{H}_2(g) + \text{O}_2(g) \xrightarrow{\Delta} 2\text{H}_2\text{O}$
 - d) $2\text{H}_2(g) + \text{O}_2(g) \xrightarrow{\Delta} 2\text{H}_2\text{O}(g)$
4. Which of the following are combination reaction?
 - i) $2\text{KClO}_3 \xrightarrow{\text{Heat}} 2\text{KCl} + 3\text{O}_2$
 - ii) $\text{MgO} + \text{H}_2\text{O} \xrightarrow{\text{Heat}} \text{Mg}(\text{OH})_2$
 - iii) $4\text{Al} + 3\text{O}_2 \xrightarrow{\text{Heat}} 2\text{Al}_2\text{O}_3$
 - iv) $\text{Zn} + \text{FeSO}_4 \xrightarrow{\text{Heat}} \text{ZnSO}_4 + \text{Fe}$
 - a) i) and iii) b) iii) and iv)
 - c) ii) and iv) d) ii and iii)
5. Which property is mostly related to the acids?
 - a) Bitter taste b) Sour taste
 - b) Pleasant smell d) Soapy touch
6. When dilute sulphuric acid is added to a solid X, a gas Y is formed along with the formation of the salt of the solid. What could be X and Y?
 - a) X: zinc; Y: oxygen
 - b) X: zinc; Y: hydrogen
 - c) X: copper; Y: oxygen
 - d) X: carbon; Y: hydrogen
7. Which of the following contains oxalic acid?
 - a) Sour milk b) Oranges

- a) $-9\sqrt{3}, 5$
 b) $9\sqrt{3}, 5$
 c) $6\sqrt{3}, -5$
 d) $6\sqrt{3}, 5$
4. If α and β are the roots of the equation $x^2 - 12x + 32 = 0$ then find value of $\frac{\alpha^2 + \beta^2}{\alpha + \beta}$
- e) $\frac{-8}{3}$ b) $\frac{8}{3}$ c) $\frac{-20}{3}$ d) $\frac{20}{3}$
5. For what value of k , If one root of the quadratic equation $9x^2 - 18x + k = 0$ is double of the other?
- a) 36 b) 9 c) 12 d) 8
6. If A and B are the roots of the quadratic equation $X^2 - 12x + 27 = 0$, then $A^3 + B^3$ is _____
- a) 27 b) 729 c) 756 d) 64
7. If the quadratic equation $(a^2 - b^2)x^2 + (b^2 - c^2)x + (c^2 - a^2) = 0$ has equal roots then which of the following is true?
- a) $b^2 + c^2 = a^2$
 b) $b^2 + c^2 = 2a^2$
 c) $b^2 - c^2 = 2a^2$
 d) $a^2 = b^2 + 2c^2$
8. If the roots of the equation $3ax^2 + 2bx + c = 0$ are in the ratio 2:3 then _____
- a) $8ac = 25b$
 b) $8ac = 9b^2$
 c) $8b^2 = 9ac$
 d) $8b^2 = 25ac$
9. The difference of the roots of $2y^2 - ky + 16 = 0$ is $\frac{1}{3}$. Find k
- a) $\pm \frac{32}{3}$
 b) $\frac{34}{3}$
 c) $\pm \frac{38}{3}$
 d) $\pm \frac{40}{3}$

10. If the roots of the equation $3x^2 + 9x + 2 = 0$ are in the ratio $m:n$

then find $\sqrt{\frac{m}{n}} + \sqrt{\frac{n}{m}}$

- a) $\frac{-3\sqrt{3}}{\sqrt{2}}$
 b) $\frac{3\sqrt{2}}{2}$
 c) $\frac{3\sqrt{3}}{\sqrt{2}}$
 d) $-\frac{3\sqrt{3}}{2}$