

DPP - Daily Practice Problems

Chapter-wise Sheets

Date :

Start Time :

End Time :

CHEMISTRY**CC10**

SYLLABUS : The s-Block Elements

Max. Marks : 120

Marking Scheme : (+ 4) for correct & (-1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 30 MCQ's. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

- Alkali metals are generally extracted by
 - reduction methods
 - double decomposition methods
 - displacement methods
 - electrolytic methods
- Which of the following represents a correct sequence of reducing power of the following elements?
 - Li > Cs > Rb
 - Rb > Cs > Li
 - Cs > Li > Rb
 - Li > Rb > Cs
- Strongest bond is in between
 - CsF
 - NaCl
 - Both (a) and (b)
 - None of above
- A metal salt solution forms a yellow precipitate with potassium chromate in acetic acid, a white precipitate with dil H_2SO_4 , but gives no precipitate with NaCl. The metal salt solution will consist of

(a) $PbCO_3$	(b) $BaCO_3$
(c) $MgCO_3$	(d) $CaCO_3$

RESPONSE GRID

1. (a)(b)(c)(d) 2. (a)(b)(c)(d) 3. (a)(b)(c)(d) 4. (a)(b)(c)(d)

Space for Rough Work

5. Which of the following has lowest thermal stability ?
 (a) Li_2CO_3 (b) Na_2CO_3
 (c) K_2CO_3 (d) Rb_2CO_3
6. The first (IE_1) and second (IE_2) ionisation energies (kJ/mol) of a few elements designated by Roman numerals are given below. Which of these would be an alkali metal?
- | | IE_1 | IE_2 |
|---------|---------------|---------------|
| (a) I | 2372 | 5251 |
| (b) II | 520 | 7300 |
| (c) III | 900 | 1760 |
| (d) IV | 16803 | 380 |
7. The solubilities of carbonates decrease down the magnesium group due to a decrease in
 (a) hydration energies of cations
 (b) inter-ionic attraction
 (c) entropy of solution formation
 (d) lattice energies of solids
8. KO_2 (potassium super oxide) is used in oxygen cylinders in space and submarines because it
 (a) absorbs CO_2 and increases O_2 content
 (b) eliminates moisture
 (c) absorbs CO_2
 (d) produces ozone.
9. Which one of the following salts does not impart colour to the flame ?
 (a) KI (b) LiCl
 (c) CaCl_2 (d) MgCl_2
10. Amongst LiCl, RbCl, BeCl_2 and MgCl_2 the compounds with the greatest and least ionic character respectively are :
 (a) LiCl and RbCl (b) MgCl_2 and BeCl_2
 (c) RbCl and BeCl_2 (d) RbCl and MgCl_2
11. Which of the following statements about Na_2O_2 is not correct?
 (a) It is diamagnetic in nature
 (b) It is derivative of H_2O_2
 (c) Na_2O_2 oxidises Cr^{3+} to CrO_4^{2-} in acid medium.
 (d) It is the super oxide of sodium
12. All of the following substances react with water. The pair that gives the same gaseous product is
 (a) K and KO_2
 (b) Na and Na_2O_2
 (c) Ca and CaH_2
 (d) Ba and BaO_2
13. Which is not correctly matched?
 (1) Basic strength $\text{Cs}_2\text{O} < \text{Rb}_2\text{O} < \text{K}_2\text{O} < \text{Na}_2\text{O} < \text{Li}_2\text{O}$ of oxides
 (2) Stability of $\text{Na}_2\text{O}_2 < \text{K}_2\text{O}_2 < \text{Rb}_2\text{O}_2 < \text{Cs}_2\text{O}_2$ peroxides
 (3) Stability of $\text{LiHCO}_3 < \text{NaHCO}_3 < \text{KHCO}_3$ bicarbonates $< \text{RbHCO}_3 < \text{CsHCO}_3$
 (4) Melting point $\text{NaF} < \text{NaCl} < \text{NaBr} < \text{NaI}$
 (a) 1 and 4
 (b) 1 and 3
 (c) 1 and 2
 (d) 2 and 3
14. If NaOH is added to an aqueous solution of Zn^{2+} ions, a white precipitate appears and on adding excess NaOH, the precipitate dissolves. In this solution zinc exists in the :
 (a) both in cationic and anionic parts
 (b) there is no zinc left in the solution
 (c) cationic part
 (d) anionic part.

RESPONSE
GRID

5. (a)(b)(c)(d) 6. (a)(b)(c)(d) 7. (a)(b)(c)(d) 8. (a)(b)(c)(d) 9. (a)(b)(c)(d)
 10. (a)(b)(c)(d) 11. (a)(b)(c)(d) 12. (a)(b)(c)(d) 13. (a)(b)(c)(d) 14. (a)(b)(c)(d)

Space for Rough Work

15. The compound A on heating gives a colourless gas and a residue that is dissolved in water to obtain B. Excess of CO_2 is bubbled through aqueous solution of B, C is formed which is recovered in the solid form. Solid C on gentle heating gives back A. The compound is
 (a) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (b) CaCO_3
 (c) Na_2CO_3 (d) K_2CO_3
16. In Castner-Kellner cell for production of sodium hydroxide:
 (a) Brine is electrolyzed with Pt electrodes
 (b) Brine is electrolyzed using graphite electrodes
 (c) Molten sodium chloride is electrolysed
 (d) Sodium amalgam is formed at mercury cathode
17. A metal X on heating in nitrogen gas gives Y. Y on treatment with H_2O gives a colourless gas which when passed through CuSO_4 solution gives a blue colour. Y is
 (a) $\text{Mg}(\text{NO}_3)_2$ (b) Mg_3N_2
 (c) NH_3 (d) MgO
18. The metals A and B form oxide but B also forms nitride when both burn in air. The A and B are
 (a) Cs, K (b) Mg, Ca
 (c) Li, Na (d) K, Mg
19. The melting point of lithium (181°C) is just double the melting point of sodium (98°C) because
 (a) down the group, the hydration energy decreases
 (b) down the group, the ionization energy decreases
 (c) down the group the cohesive energy decreases
 (d) None of these
20. Which of the following are arranged in increasing order of solubilities?
 (a) $\text{CaCO}_3 < \text{KHCO}_3 < \text{NaHCO}_3$
 (b) $\text{NaHCO}_3 < \text{KHCO}_3 < \text{CaCO}_3$
 (c) $\text{KHCO}_3 < \text{NaHCO}_3 < \text{CaCO}_3$
 (d) $\text{CaCO}_3 < \text{NaHCO}_3 < \text{KHCO}_3$
21. For a good quality cement what should be the ratio of following :
 I. Silica to alumina
 II. CaO to the total of oxides of SiO_2 , Al_2O_3 and Fe_2O_3
 (a) I = 2.5 to 4
 II = Greater than 2
 (b) I = Nearly 4
 II = Less than 2
 (c) I = 2.5
 II = Closer to 2
 (d) I = 2.5 to 4
 II = Closer to 2
22. Which one of the following does not react with water even under red hot condition?
 (a) Na (b) Be
 (c) Ca (d) K
23. Which of the following are found in biological fluids Na^+ , Mg^{2+} , Ca^{2+} , K^+ , Sr^{2+} , Li^+ and Ba^{2+}
 (a) Mg^{2+} , Ca^{2+} , and Sr^{2+}
 (b) Na^+ and K^+
 (c) Na^+ , K^+ , Mg^{2+} and Ca^{2+}
 (d) Sr^+ , Li and Ba^{2+}
24. Which of the following statements is not correct for alkali metals?
 (a) Alkali metals are the most electropositive metals.
 (b) Alkali metals exist in free state in nature.
 (c) These metals have the largest size in a particular period of the periodic table.
 (d) Both (b) and (c)

RESPONSE
GRID

15. (a)(b)(c)(d) 16. (a)(b)(c)(d) 17. (a)(b)(c)(d) 18. (a)(b)(c)(d) 19. (a)(b)(c)(d)
 20. (a)(b)(c)(d) 21. (a)(b)(c)(d) 22. (a)(b)(c)(d) 23. (a)(b)(c)(d) 24. (a)(b)(c)(d)

Space for Rough Work

25. Which one of the following alkaline earth metal sulphates has its hydration enthalpy greater than its lattice enthalpy ?
 (a) BaSO_4 (b) SrSO_4
 (c) CaSO_4 (d) BeSO_4
26. The metallic sodium dissolves in liquid ammonia to form a deep blue coloured solution. The deep blue colour is due to formation of:
 (a) solvated electron, $e(\text{NH}_3)_x^-$
 (b) solvated atomic sodium, $\text{Na}(\text{NH}_3)_y$
 (c) $(\text{Na}^+ + \text{Na}^-)$
 (d) $\text{NaNH}_2 + \text{H}_2$
27. A firework gives out crimson coloured light. It contains a salt of
 (a) Ca (b) Na
 (c) Sr (d) Ba
28. Magnesium wire burns in the atmosphere of CO_2 because
 (a) Magnesium acts as an oxidising agent
 (b) Magnesium has 2 electrons in the outermost orbit.
 (c) Magnesium acts as a reducing agent and removes oxygen from CO_2
 (d) None of these
29. The first ionisation potential of Na is 5.1 eV. The value of electron gain enthalpy of Na^+ will be
 (a) -2.55 eV (b) -5.1 eV
 (c) -10.2 eV (d) $+2.55 \text{ eV}$
30. Stability of the species Li_2 , Li_2^- and Li_2^+ increases in the order of:
 (a) $\text{Li}_2 < \text{Li}_2^+ < \text{Li}_2^-$ (b) $\text{Li}_2^- < \text{Li}_2^+ < \text{Li}_2$
 (c) $\text{Li}_2 < \text{Li}_2^- < \text{Li}_2^+$ (d) $\text{Li}_2^- < \text{Li}_2 < \text{Li}_2^+$

RESPONSE
GRID

25. (a)(b)(c)(d) 26. (a)(b)(c)(d) 27. (a)(b)(c)(d) 28. (a)(b)(c)(d) 29. (a)(b)(c)(d)
 30. (a)(b)(c)(d)

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 10 - CHEMISTRY

Total Questions	30	Total Marks	120
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	37	Qualifying Score	56
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

Space for Rough Work